

SECTION II

FACILITY OPERATION AND HAZARDOUS WASTE MANAGEMENT PRACTICE

SECTION II – FACILITY OPERATION AND HAZARDOUS WASTE MANAGEMENT PRACTICE

A. Describe the facility business type, including:

1. What manufacturing processes are employed and products manufactured

ECS Refining recycles precious metal-bearing electronic scrap, tin/lead solder dross and related wastes from electronics manufacturing, photographic waste with silver, and cathode ray tubes/computer monitors.

Processes employed include shredding and segregation of recyclable items into metal, plastic and cardboard streams for end-point recycling. Materials may also be melted on-site in low temperature or high temperature furnaces for metal recovery. Liquid photochemical wastewaters and other metal-bearing wastewaters may be treated with precipitants to recover metals, or may have the water evaporated to produce a metal-rich sludge.

Products manufactured are scrap materials prepared and segregated for metal and other product recovery, such as aluminum, steel and copper. Ingots are produced and sold to metal refiners. Crushed leaded glass is produced from cathode ray tubes and computer monitors and is sold to lead smelters for final metal recovery.

Of these activities, the recycling of post-consumer electronic scrap (universal waste electronic devices or UWEDs) and cathode ray tubes and computer monitors are not included in this permit as a hazardous waste treatment activity. These activities are allowed by universal waste regulations as preparing the materials for their eventual recovery at the destination facility, the smelter. In addition, recycling of printed circuit board scrap from manufacturers is not included as a hazardous waste treatment activity, since these materials are properly classified as scrap metal.

2. Where and what hazardous wastes are generated or received.

ECS Refining does not generate hazardous wastes from its processes. The hazardous wastes received by ECS for recycling are generated by two broad business categories—electronics manufacturing and photographic developing and printing processes.

All hazardous waste materials are received at the facility's main

loading dock, where the manifest and shipping papers are examined. The materials are weighed and a bar code for inventory control is affixed to the container. The containers are then dispersed to a storage area to await processing.

3. How hazardous wastes are typically managed, e.g. storage in less than 90-days, stored in drums or tanks, or treated in containers or tanks.

Incoming solid hazardous wastes are stored in their containers until processing or transfer to another facility. Liquid photochemical wastes and other liquid wastes are either stored in their container or pumped into the tanks associated with the silver recovery system to await processing. All hazardous waste treatment units at the facility are classified as tank treatment units, though many are not, in fact, tanks.

- B. Provide manufacturing process flow diagrams showing how and where hazardous wastes are generated.

Process flow diagrams are included at the end of Section II.

- C. Provide simplified process flow diagrams showing how and where the hazardous wastes are treated and stored.

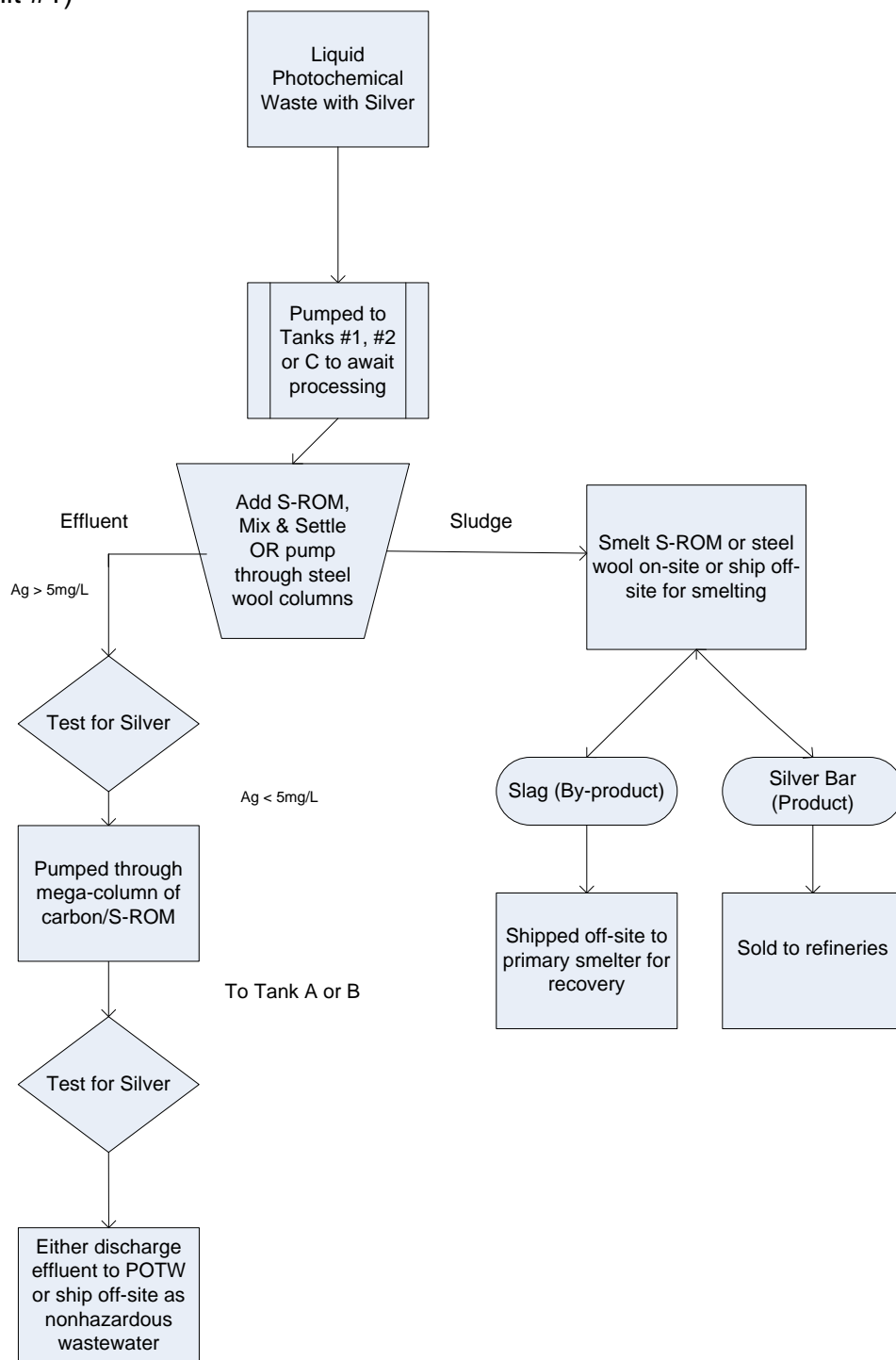
Process flow diagrams are included at the end of Section II.

Provide a process flow diagram showing the path of each waste stream from the point of entrance into the facility to its exit from the facility. The process flow diagram should include each point where the waste stream physically and/or chemically changes and show points where samples are collected (sampling points will be indicated in the waste analysis plan). Also show any equipment used to move the waste stream such as pumps, blowers, belts, etc.

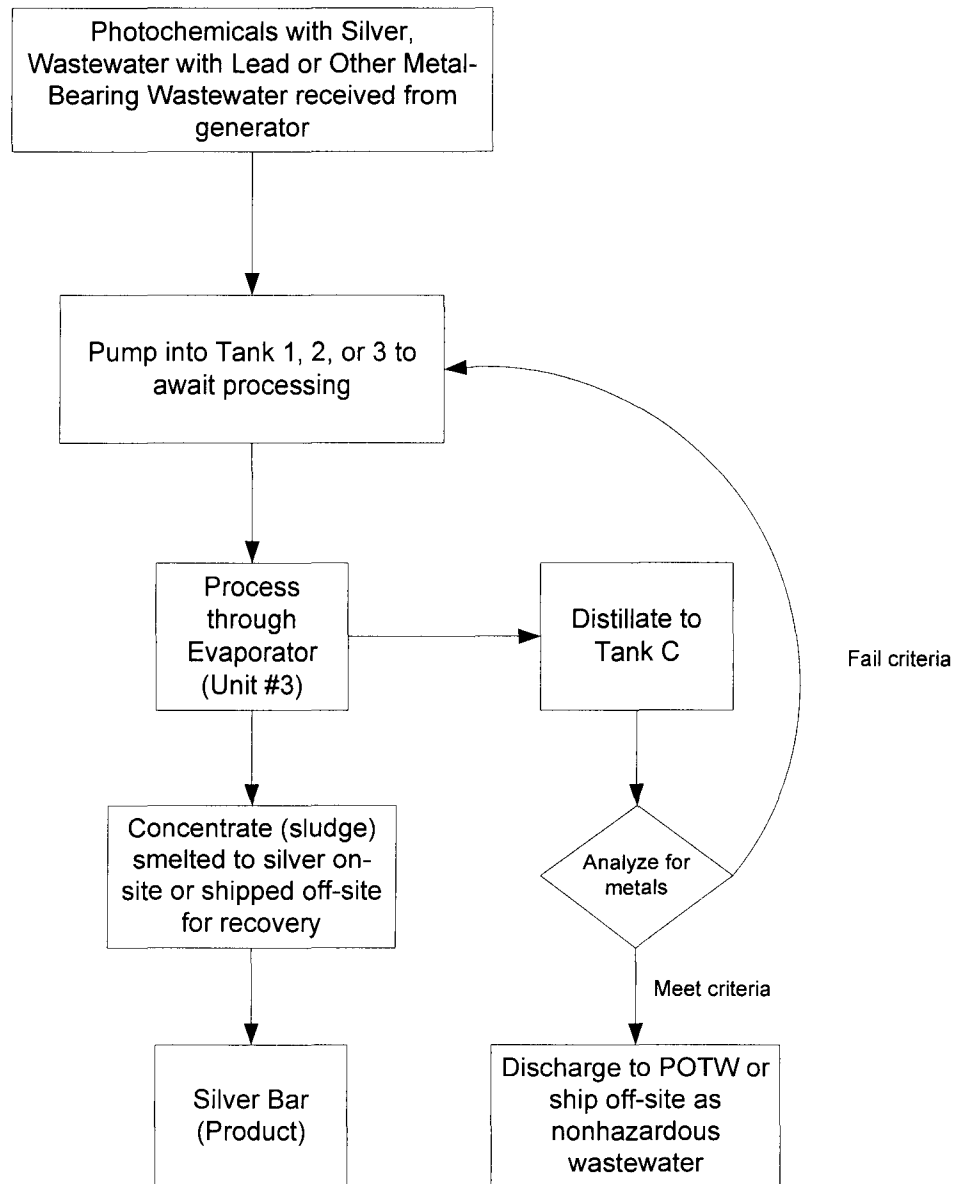
PROCESS FLOW DIAGRAMS

Silver Recovery Process (Unit #1)

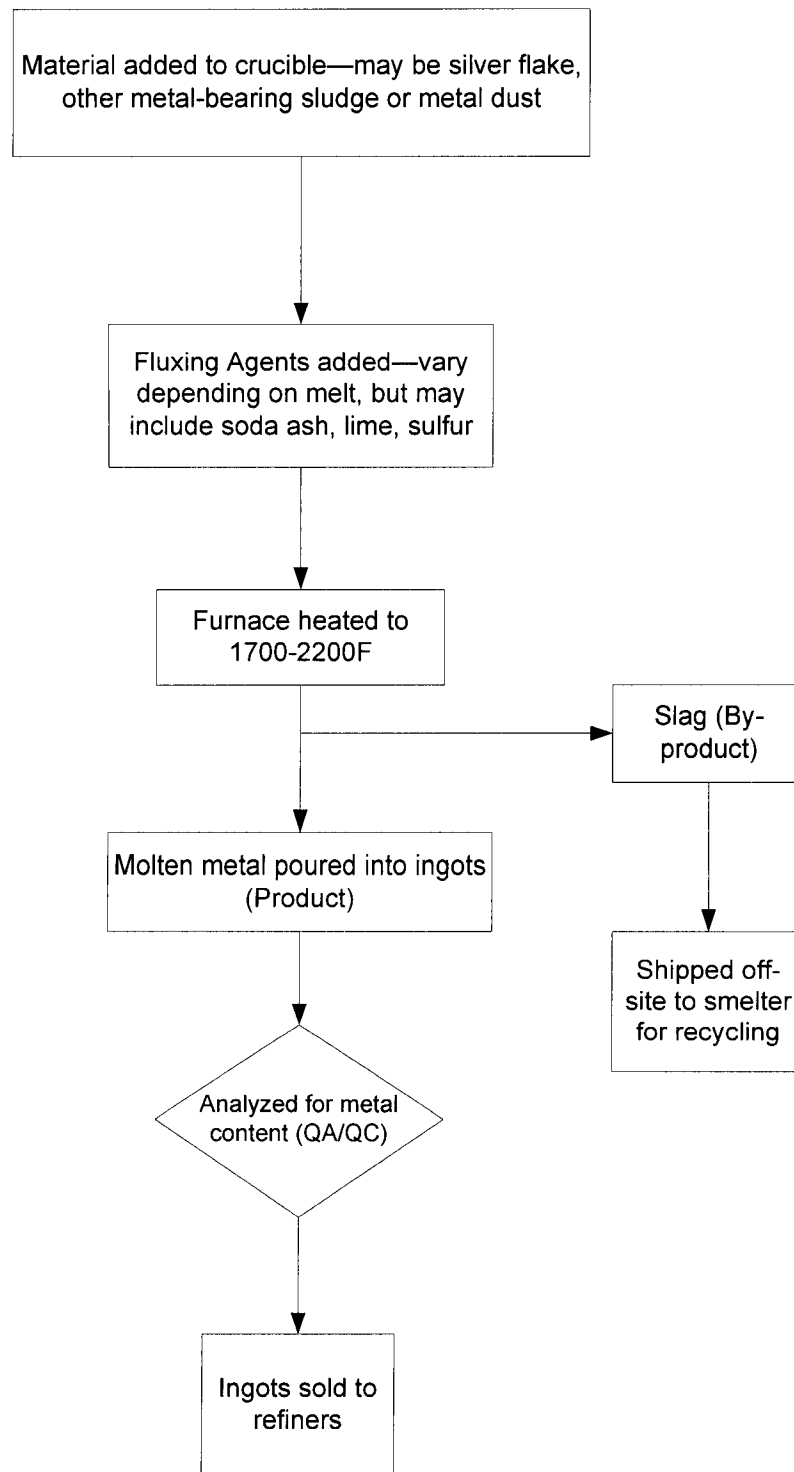
Note: Photochemicals with only silver may be treated in steel wool columns (not a regulated unit). Photochemicals and wastewaters contaminated with other metals may be treated with S-ROM process



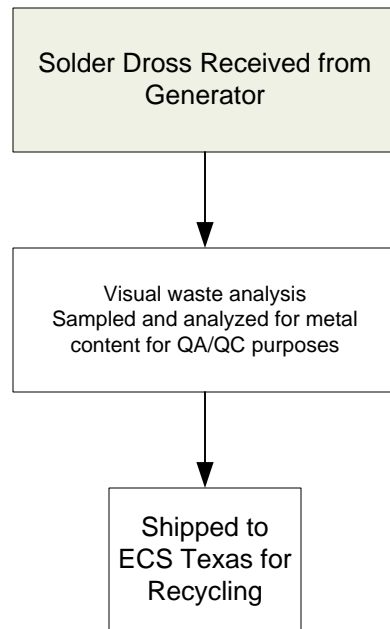
Evaporator Process Flow



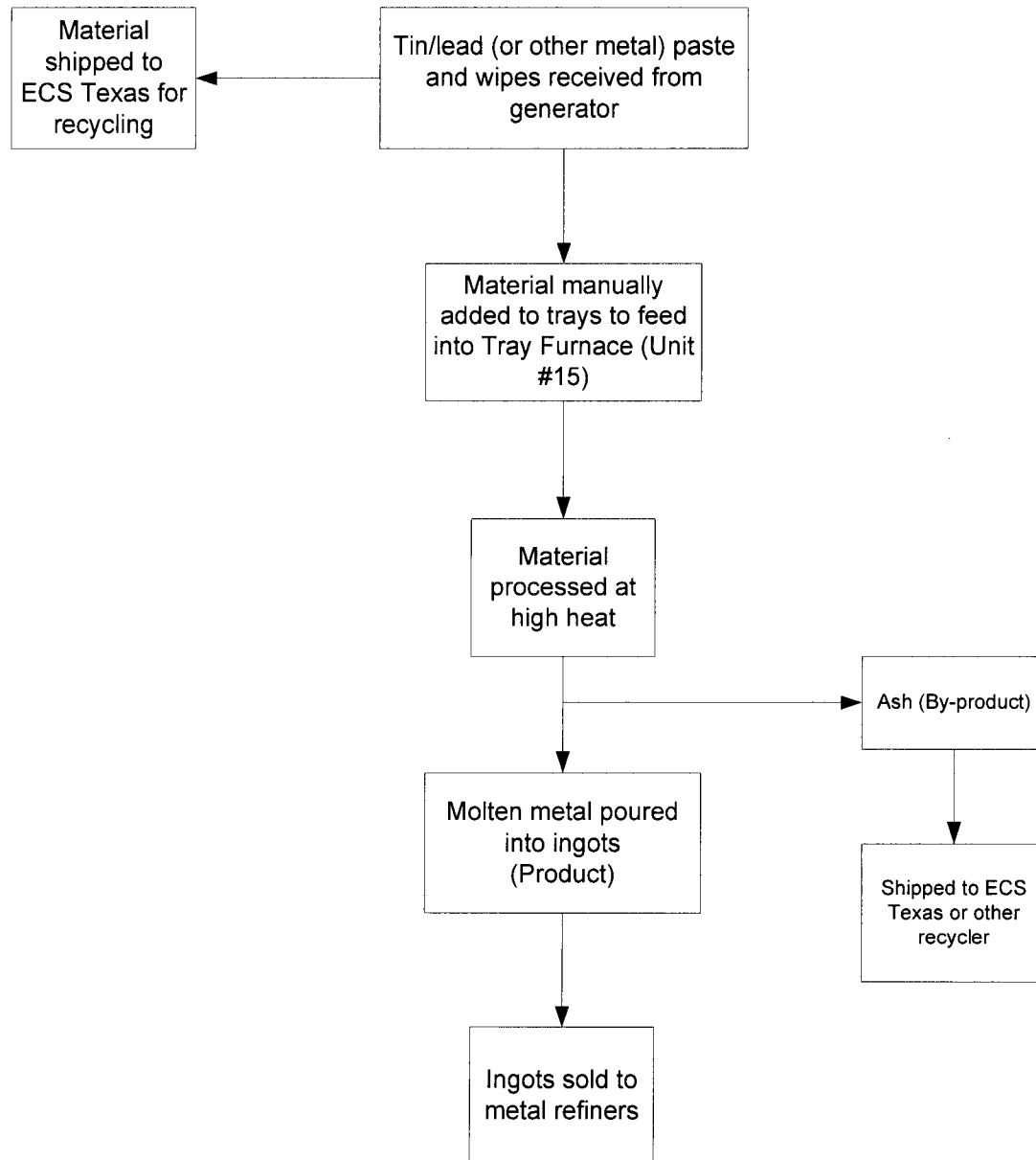
Crucible Furnace or Hot Pot Process Flow



Solder Dross Process Flow Diagram

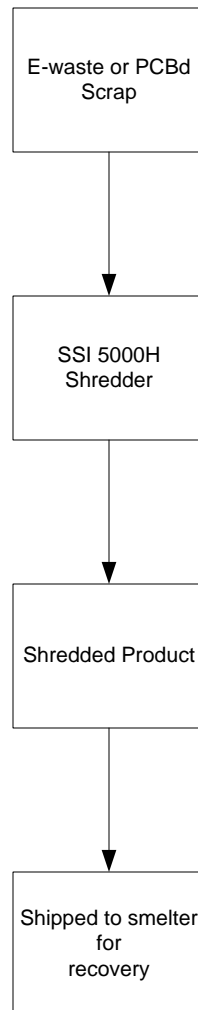


Solder Paste and Wipes Process Flow



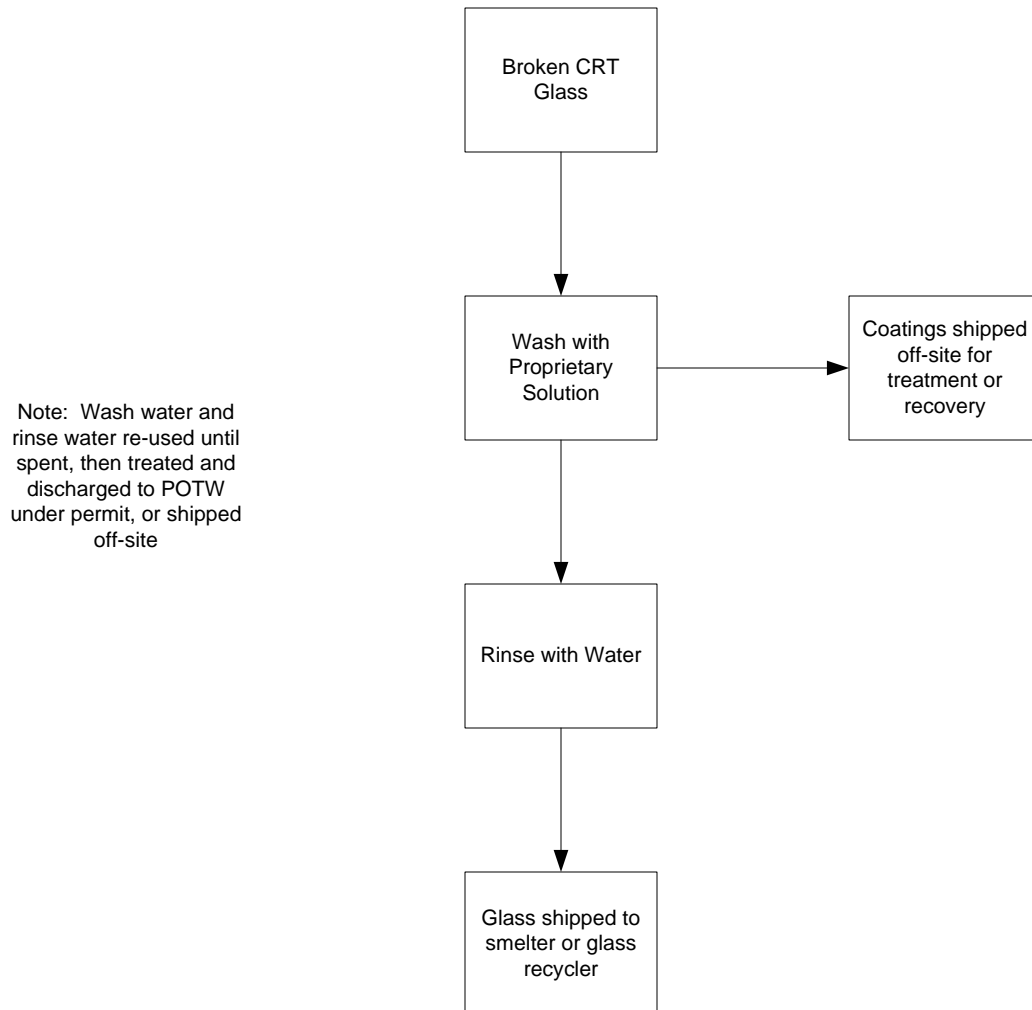
E-WASTE/PRINTED CIRCUIT BOARD
SHREDDER
UNIT #27

PROCESS FLOW DIAGRAM

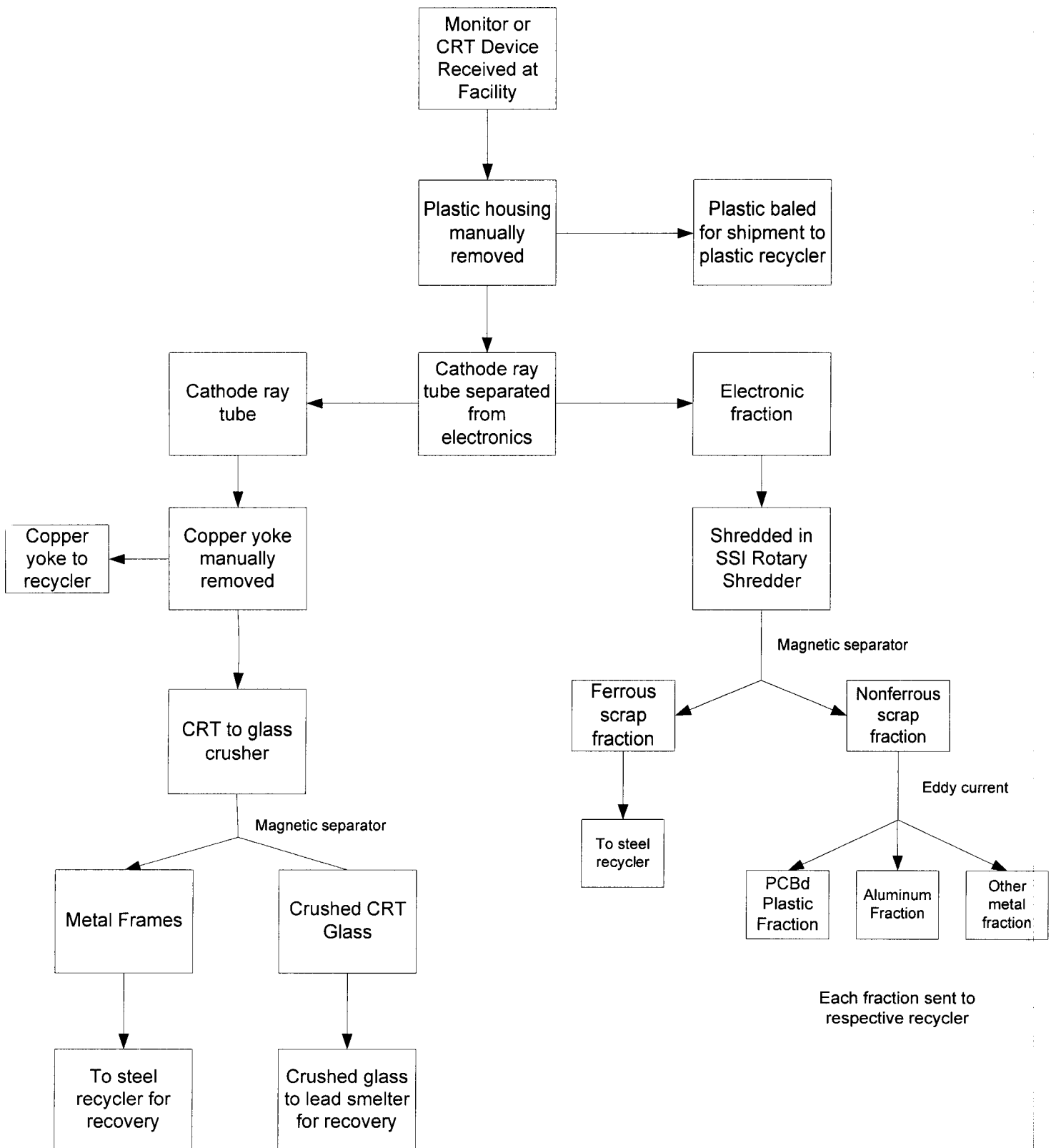


CRT GLASS WASHING UNIT UNIT #28

PROCESS FLOW DIAGRAM

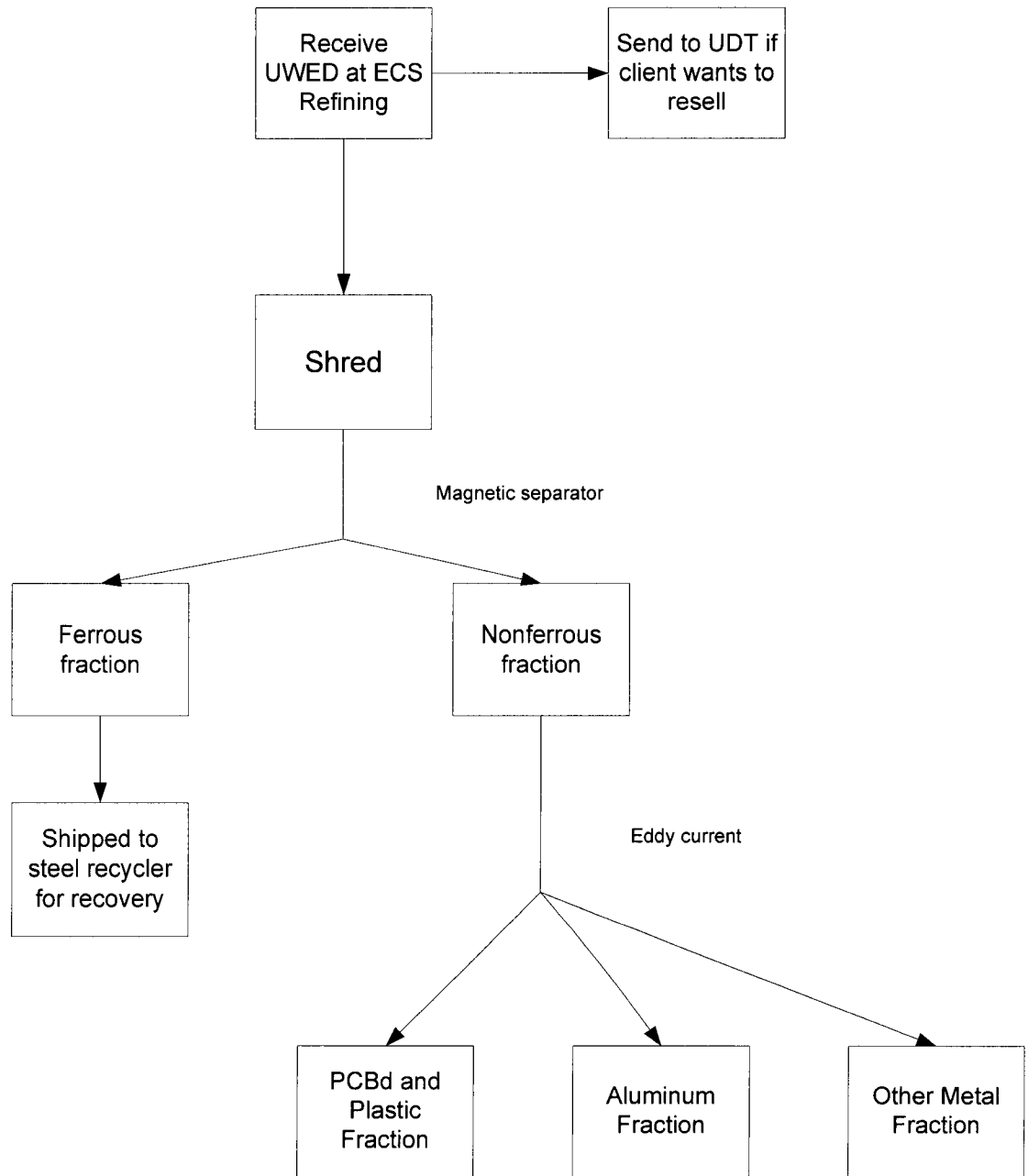


Computer Monitor/CRT Device Process Flow Diagram



Note: This is not a regulated hazardous waste treatment activity.

Universal Waste Electronic Devices Process Flow Diagram



Each fraction sent to respective recycling outlet

Note: This process is not
a regulated hazardous
waste treatment activity.

SECTION III

WASTE ANALYSIS PLAN

SECTION III WASTE ANALYSIS PLAN

The purpose of this plan is to describe the procedures and methods ECS Refining will use to determine whether wastes submitted for recycling meet the facility's acceptance criteria. There are two phases of this process: pre-acceptance screening, and examination of the containers upon arrival at ECS Refining for conformance to the wastes identified on the client's profile.

The wastes accepted for recycling at ECS Refining are process-specific waste streams that are readily identifiable by appearance and are generated by many businesses throughout the state. For example, tin/lead solder dross is readily recognizable to the trained eye. Therefore, confirmation that the waste conforms to the profile does not necessarily require analytical testing.

A. Description of Waste Types

A complete list of all waste stream types accepted and managed at ECS Refining is included as an appendix to this Waste Analysis Plan (see Table III-A, attached). This table lists the waste streams, assigns each waste stream a unique letter identifier, lists the applicable state and federal waste codes, gives the hazards posed by the waste, the hazardous constituents, and provides a description of the process generating the waste. Both hazardous and non-hazardous wastes that are handled at the facility are included in the table for explanatory purposes. The wastes handled at ECS Refining that are non-hazardous are *not required* to be sampled as the hazardous wastes are, and are only included in this table for clarification of all types of materials handled.

B. Pre-Acceptance Criteria

All generators are required to submit written waste profiles for each waste stream prior to shipping the material to ECS Refining for recycling. Example waste profile sheets are included as Appendix III-B to this section. Waste profiles are accepted online, by fax, and by mail. In most cases, the submittal of a waste profile provides sufficient information to approve the material. For wastes that differ from the routinely accepted tin/lead solder dross, tin/lead and other metal solder pastes and wipes and the photographic wastes, additional information may be requested from the generator. Depending upon the waste, ECS Refining may require a more detailed description of the process and raw materials that generated the waste, copies of material safety data sheets, analytical results, or submittal of a sample of the waste. Waste profiles are reviewed at ECS Refining for conformity with waste acceptance guidelines, are approved by the Environmental Department, and generators are issued an acceptance letter notifying them that the waste as profiled is acceptable at ECS Refining for recycling.

The following tables delineate the pre-acceptance criteria for each incoming waste stream that will be used to determine whether a waste is acceptable for recycling at ECS Refining. The waste stream letter from Table III-A is included for reference.

Solder Dross (A), Solder Paste and Wipes (D), Sludge with Silver (I), Off-specification, aged, or surplus inorganics (N), Laboratory chemical waste (O), Metal dust (P), Other metal-bearing sludges (Q), Polymeric resin waste (S), Filters with Silver (T), Filters with Lead (U), Wipes with Silver (V), Miscellaneous Residue with Silver (W), and Miscellaneous Residue with Lead (X)

Pre-Acceptance Criteria	Test Method	Acceptable Results
Appearance	Observation	Waste appearance should be as normally observed for the waste type. Solder dross is a mixture of metal and metal oxides that is readily identifiable to the trained eye. Paste and wipes is a mixture of partially used tubes or jars of solder paste, along with paper or textile wipes contaminated with solder paste. Other wastes are similarly readily identifiable to the trained eye.

Liquid Photochemicals with Silver (F)

Pre-Acceptance Criteria	Test Method	Acceptable Result
Appearance	Observation	Clear to dark brown liquid with photochemical odor. Material should not have the smell of an organic solvent. If solvent is suspected, mix the waste sample with an aliquot of water to determine if the material is miscible in water. Materials that are not miscible in water are unacceptable.
pH	pH Meter or Test Paper	2.5 – 11.5

Metal-Bearing Wastewaters (Y)

Pre-Acceptance Criteria	Test Method	Acceptable Result
Appearance	Observation	Material should not have the smell of an organic

		solvent. If solvent is suspected, mix the waste sample with an aliquot of water to determine if the material is miscible in water. Materials that are not miscible in water are unacceptable.
pH	pH Meter or Test Paper	2.5 – 11.5

C. Inspection of Incoming Waste Streams

Once a shipment of waste arrives at ECS Refining, the personnel in the Receiving Area examine the manifest and shipping documents to ensure they are properly completed. Any discrepancies are handled by contacting the generator for clarification.

At least ten percent of the containers of hazardous waste received will be systematically sampled to ensure that the materials conform to that profiled. Wastes will be examined according to the provisions of the pre-acceptance criteria outlined in this waste analysis plan. The waste analysis results are recorded on the “Receiving Waste Analysis Log”, a copy of which is included as Attachment III-C of this waste analysis plan.

Sampling methods for solid materials that only require a visual observation check to ensure the waste meets the acceptance criteria are to open the drum or container and examine the contents. Any wastes that do not appear to conform to the expected appearance standard of the waste may be sampled and analyzed. Samples will be taken with scoops dedicated for sampling.

Liquids will be sampled with a drum thief and the sample placed in a plastic bottle for examination.

D. Outgoing Waste Shipments

ECS Refining ships only one by-product as a hazardous waste, the tray furnace ash. This material is produced by one process only, and is shipped to ECS Refining’s sister facility ECS Texas for recovery. Consequently, no analytical testing is required to determine whether the material meets TSD specifications.

E. Periodic Generator Profile Verification

Generator’s are required to submit an update to their waste stream profiles annually, or whenever their process that generates the waste changes.

Table III-A
Description of Waste Streams

Waste Stream Letter	Common Name of Hazardous Waste	U.S. EPA Waste Code	California Waste Code	Hazard	Description of Waste	Process Generating Waste
A	Solder Dross	D008	181	Toxic	A mixture of tin/lead alloy and oxides produced during soldering. May also contain other metals in excess of TTLC.	Electronics assembly; other soldering operations.
		D005				
		D006				
		D007				
		D011			May contain precious metals.	RCRA-exempt characteristic by-product.
B	Waste Oil	none	221	Toxic	Waste oil generated in maintenance activities	Maintenance activities on-site.
						RCRA-exempt petroleum product.
C	Tin/Lead Oxides	D008	181	Toxic	The tin/lead oxide portion of the dross. Material is an outgoing by-product. May contain precious metals.	Melting tin/lead dross to recover alloy allows separate recovery of the oxide layer.
		D005				
		D006				
		D007				
		D011				
D	Solder Paste and Wipes	D008	181	Toxic	Off-specification or used solder paste jars and cartridges; tissue wipes contaminated with solder paste. Solder pastes are typically tin/lead, though they may contain other metals.	Surface mount technology.
		D005			May contain precious metals.	
		D006				
		D007				
		D011				
E	Ash	D008	181	Toxic	Metal-bearing ash. Material is an outgoing by-product. May contain precious metals.	Recovered from melting solder paste into ingots.
		D005				
		D006				
		D007				
		D011				
F	Photochemicals with Silver	D011	541	Toxic	Spent silver-bearing photographic and X-ray developing and printing waste solutions.	Photographic processing, printing, and X-ray developing industries.
		D007				
					May contain precious metals.	

Table III-A
Description of Waste Streams

Waste Stream Letter	Common Name of Hazardous Waste	U.S. EPA Waste Code	California Waste Code	Hazard	Description of Waste	Process Generating Waste
G	Treated Effluent	None	None	None	Treated wastewater that meets local industrial discharge limits. Material is an outgoing by-product.	Recovery of silver from photographic wastewaters. Recovery of metals from other metal-bearing wastewaters.
H	Steel Wool Recovery Column (or Cartridge)	None	None	None	May contain precious metals. Not regulated when recycled.	Treatment of silver-bearing wastewaters. RCRA-exempt characteristic sludge.
I	Sludge with Silver	D011 D007	171 541	Toxic	Unspecified sludge with silver Contains precious metals	Treatment of silver-bearing wastewaters. RCRA-exempt characteristic sludge.
J	Dry sludge with Silver	None	None	Toxic	Unspecified sludge with silver after drying Contains precious metals	Treatment of sludge with silver Product material
K	Ag/Fe Pulp	None	None	Toxic	Dry, milled silver/iron powder Contains precious metals	Treatment of steel wool columns Product material
L	Silver Flake	None	None	Toxic	High grade silver chips Contains precious metals Not regulated when recycled.	Electrolytic recovery of silver from photoprocessing wastewaters. RCRA-exempt characteristic sludge.
M	Slag	none	none	Toxic	Glassy metal-bearing solid Material is an outgoing by-product.	High-temperature metal recovery non-RCRA by-product
N	Off-specification aged or surplus inorganics	D008 D004 D005 D006 D007 D010 D011	141	Toxic	Metal bearing inorganic waste May contain precious metals.	Manufacturing processes RCRA-exempt commercial chemical products that exhibit a characteristic

Table III-A
Description of Waste Streams

Waste Stream Letter	Common Name of Hazardous Waste	U.S. EPA Waste Code	California Waste Code					
				Hazard	Description of Waste	Process Generating Waste		
O	Laboratory chemical waste	D004	551	Toxic	Small quantities of compatible metal-bearing laboratory wastes	Laboratory research operations		
		D005						
		D006					RCRA-exempt commercial chemical products that exhibit a characteristic	
		D007				May contain precious metals.		
		D008						
		D010						
		D011						
P	Metal dust	D004	172	Toxic	Metal dust/machining waste	Metal product manufacturing		
		D005						
		D006				May contain precious metals	RCRA-exempt characteristic by-product	
		D007						
		D008						
		D010						
		D011						
Q	Other metal-bearing sludges	D004	171	Toxic	Metal-bearing sludges.	Characteristic sludges that may be reclaimed.		
		D005	491					
		D006					RCRA-exempt characteristic by-product.	
		D007						
		D008						
		D010						
		D011						
R	Baghouse waste	D004	591	Toxic	Metal-bearing baghouse waste	Air pollution control sludge from manufacturing processes.		
		D005				Material is an outgoing by-product.		
		D006				May contain precious metals.		
		D007						
		D008					RCRA-exempt characteristic sludge.	
		D010						
		D011						

Table III-A
Description of Waste Streams

Waste Stream Letter	Common Name of Hazardous Waste	U.S. EPA Waste Code	California Waste Code	Hazard	Description of Waste	Process Generating Waste
S	Polymeric resin waste	D004 D005 D006 D007 D008 D010 D011	272 541	Toxic	Ion exchange resin loaded with metals. May contain precious metals.	Wastewater treatment. RCRA-exempt characteristic sludge.
T	Filters with Silver	D011	171 541	Toxic	Filters with silver residue Contains precious metals.	Filtration of silver-bearing wastewaters. RCRA-exempt characteristic sludge.
U	Filters with Lead	D008	171	Toxic	Filters with lead residue	Filtration of lead-bearing wastewaters. RCRA-exempt characteristic sludge.
V	Wipes with Silver	D011	181 541	Toxic	Textile or other absorbent wipes contaminated with silver Contains precious metals.	Surface mount technology Spill clean up
W	Miscellaneous Residue with Silver	D011	181	Toxic	Materials contaminated with silver Contains precious metals	Spill clean up; used equipment
X	Miscellaneous Residue with Lead	D008	181	Toxic	Materials contaminated with lead	Spill clean up; used equipment
Y	Metal-bearing wastewaters	D004 D005 D006 D007 D008 D010 D011	121 132 135 721 722 724 726 727/728	Toxic	Metal-bearing wastewaters May contain precious metals	Characteristic wastewaters from manufacturing processes.

Table III-A
Description of Waste Streams

[illegible]

APPENDIX III-B

Example Waste Profile Sheets

Tin/Lead Solder Dross and Related Items
Photochemicals with Silver and Related Items



WASTE PROFILE

Profile #: _____
Env. Appr. _____
Entered By _____
Enter Date _____
Salesperson _____

GENERAL INFORMATION

1. Generator Name: _____ Billing Address: ☐ Same _____
2. Generator Address: _____
3. Technical Contact/Phone: _____ Billing Contact/Phone: _____
4. Generator USEPA ID: _____ Haz. Tax ID: _____

WASTE DESCRIPTION

5. Process Generating Waste: _____
6. Waste Name: (Circle one)
Solder Dross Solder Dross w/Oil Residue Other Lead Residue _____
7. Physical State: (Circle one) Solid Solid w/trace of Oil Other _____
Color: Greyish Silver Other _____ Odor: None Other _____
Spec.Grav.: 7.28-8.42 Other _____ Flash Point: No Flash<400°F Other _____

CHEMICAL COMPOSITION

8. Metal Content: Tin _____% Organic Mat'l Content: Oil (specify type) _____%
Lead _____%
Other _____%
Other _____%
Other _____%
Cyanides 0 ppm Other: _____ ppm
Sulfides 0 ppm
PCB's 0 ppm
Dioxins 0 ppm

SHIPPING INFORMATION

9. DOT Shipping Name: RQ, Hazardous Waste Solid, n.o.s., Class 9, NA3077,
Packing Group III (Lead)
Extra Information: Contains Lead Dross EPA Waste Code: Exempt(Dross); D008(Solids, paste, wipes,etc.)
CA Waste Code: 181

Additional Information/Generator Certification

10. _____

This is to certify that the information submitted is complete and accurate, and that all known or suspected hazards have been disclosed. This waste does not contain any radioactive, biological, pathogenic, and/or etiological agents. I agree to notify ECS of any changes in this wastestream by submitting an updated waste profile sheet.

Authorized Signature _____

Title _____

Name (print) _____

Date _____

ECS 5/93

705 REED STREET • SANTA CLARA, CA 95050 • (408) 988-4386 • FAX (408) 988-5154
Environmentally Safe Recycling of Precious Metals • Photoprocessing Wastes • Tin/Lead Residues

REFINING

WASTE PROFILE

Profile #: _____
 Env. Approval _____
 Entered By _____
 Enter Date _____
 Salesperson _____

GENERAL INFORMATION

1. Generator Name: _____ EPA ID# _____
 2. Site Address: _____ Mailing Address: ☐ Same
 3. Technical Contact: _____
 4. Telephone: (____) _____ Contact: _____
 5. Fax: (____) _____ Telephone: (____) _____
 Haz. Tax ID # _____ (This is not your Federal Taxpayer I.D. number-See instructions)

WASTE DESCRIPTION

5. Generating Process Description: _____
 6. Waste Name (Check One):
☐ Liquid Photochemical Waste ☐ Metallic Replacement Cartridge ☐ Silver Flake ☐ Filters with Silver
☐ Silver Sludge ☐ Other (specify) _____
 7. Film Process: _____
 Check all solutions which will contribute to this waste stream:
☐ Developer ☐ Fixer ☐ Bleach ☐ Stabilizer ☐ Other (specify) _____
 8. Paper Process: _____
 Check all solutions which will contribute to this waste stream:
☐ Developer ☐ Fixer ☐ Bleach/Fix ☐ Stabilizer ☐ Other (specify) _____

SHIPPING INFORMATION (Check One - See Instructions)

☐ RQ, Hazardous Waste Liquid, n.o.s., Class 9, NA3082, PGIII (Silver) EPA Waste Code: D011 CA Waste Code: 541
 Additional Description: Photochemicals with Silver
☐ RQ, Hazardous Waste Solid, n.o.s., Class 9, NA3077, PGIII (Silver) EPA Waste Code: Exempt CA Waste Code: 171
 Additional Description: (Circle One): Cartridge Steel Wool with Silver Silver Flake Silver Sludge Filters with Silver
 Other (specify) _____

ADDITIONAL INFORMATION/GENERATOR CERTIFICATION

10. _____

This is to certify that the information submitted is complete and accurate, and that all known or suspected hazards have been disclosed. This waste does not contain any radioactive, biological, pathogenic, and/or etiologic agents. **I agree to notify of any changes in the composition of this waste stream by submitting an updated waste profile sheet.**

Authorized Signature _____

Title _____

Print Name _____

Date _____

Rev 593

Waste Analysis Plan Attachment III-C

[illegible]

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SECTION IV

FACILITY DESIGN (STORAGE)

SECTION IV – FACILITY DESIGN (STORAGE)

A. STORAGE AREAS FOR DRUMS / CONTAINERS / TANKS / OTHER DEVICES

1. How many storage areas do you have or plan to have? In the facility plot plan, indicate where your storage areas are, how you will arrange the storage devices (including length of each row, aisle space). See Notes, below;

The facility maintains four storage areas for hazardous wastes, and additional storage area for non-hazardous or universal wastes. See the facility plot plan in Section II for the facility layout.

Aisle space is maintained at 24 inches, as agreed upon as a condition of the previously granted standardized permit and in accordance with the City of Santa Clara requirements.

2. What are the dimensions of each storage area? Include the berm height.

Storage Area I: 10'L x 5'W
Storage Area IIa: 47' 8"L x 27'W x 6"H
Storage Area IIb: 85'L x 30'W x 9"H
Storage Area III: Not regulated or used for hazardous waste
Storage Area IV: 62'L x 58'W

3. How many storage devices do you plan to store in each area?

The following table shows the areas and capacities of the drum storage areas:

<i>Unit Number</i>	<i>Storage Area Name</i>	<i>Number of Drums</i>	<i>Comments</i>
10	Area I	20	Solids only
11a	Area IIa	20	Liquids
11b	Area IIb	160	Liquids
12	Area III	No hazardous waste in this area	
13	Area IV	648	648 drums of solid, liquid or equivalent. Liquids stored in this area are stored on containment pallets.

The following table shows the tank storage capacity. The tanks are used for storage of incoming photochemical and other wastewaters, and are part of the treatment units associated with Unit #1, Silver Recovery Unit, and Unit #3, Vacuum Evaporation Unit.

<i>Tank Number</i>	<i>Capacity (gallons)</i>	<i>Location</i>
Tank A	3,000	Area IIa
Tank B	3,000	Area IIa
Tank 1	2,500	Area IIb
Tank 2	2,500	Area IIb
Tank 3	2,500	Area IIb
Tank C	3,200	Area IIb

Three tanks were permitted in the standardized permit issued 12/30/1997 that will be removed before this permit is approved. They are Tank D, Tank E, and Tank F located on the mezzanine in Storage Area IIa.

4. What are the sizes of the storage devices?

Containers stored are typically 55-gallon drums, either high density polyethylene or steel construction. However, smaller drums and containers may be stored, such as 30-gallon, 15-gallon, and 5-gallon.

5. Do you stack storage devices? You may not stack more than two containers high.

Containers and drums are usually double-stacked.

6. All waste must be stored in DOT (Department of Transportation) approved storage devices. Of what materials are your storage devices made?

The drums are constructed of steel or HDPE (High Density Polyethylene).

The tanks are constructed of HDPE (High Density Polyethylene).

Non-hazardous and universal waste electronic scrap or CRT devices are stored directly on pallets and secured with shrink wrap, or are stored in cubic yard Gaylord boxes constructed of cardboard.

7. Are or will any storage devices be kept outside? If so, describe the measures taken to protect hazardous waste /devices that are subject to corrosion or deterioration from the weather (e.g. roofs, tarps, awnings, and elevation of containers above ground surface)

Hazardous wastes are not stored outside, though they may be stored in Area IIb, which is an outdoor area covered by a roof and surrounded by a containment berm with sufficient containment capacity for the materials stored there.

8. Will liners be used in any of the storage devices holding hazardous waste? If so, explain how the empty storage devices or liners are or will be managed or disposed.

Liners are not typically used in any of the storage devices.

9. How do you track your storage devices management and movement (e.g., receiving to offsite shipment)?

The facility maintains a computerized inventory control system. Upon receipt at the facility, each container is affixed with a bar code label to track its progress through the facility. Upon processing of the container, the bar code is scanned and marked as “processed” into a particular outgoing lot. This enables the facility management to search the computerized inventory for containers of hazardous waste currently in inventory, to determine the particular day a container is processed and into which outgoing shipment it went.

10. How do you make sure that any incompatible wastes are separated?

The facility does not receive and store any incompatible wastes.

11. How often do you inspect your storage devices? You are required to inspect the container storage areas at least weekly, daily for tank storage area and look for leaking containers and for deterioration of storage devices and the containment system caused by corrosion or other factors. A storage device holding hazardous waste must always be closed during transfer and storage, except when it is necessary to add or remove waste.

The container storage areas are inspected weekly for integrity and capacity.

The tank storage areas are inspected daily. See the Inspection Plan for further details on each of these required inspections.

B. HAZARDOUS WASTES STORED

Provide the name and describe the physical properties of each hazardous waste that is or will be stored in each area. Be sure that the information

includes all of the following:

1. Common waste chemical name(s)
2. EPA and/or California hazardous waste number(s)
3. Specific gravity
4. Vapor pressure, if applicable
5. Flame point/auto-ignition temperature, if applicable
6. pH
7. Color
8. Others (to be completed by Applicant)

See attached Table IV-1 for this information.

C. STORAGE DEVICE / EQUIPMENT DESCRIPTION

List all devices/equipment to be used in each storage area, including containers, totes, bags, tanks, reactors, vats, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches
2. Internal design capacity in gallons

Tank Capacities and Dimensions

<i>Tank Number</i>	<i>Capacity (gallons) and Type</i>	<i>Internal Dimensions (d x h)</i>
Tank A	3,000 cone-bottom	95" x 121"
Tank B	3,000 cone-bottom	95" x 121"
Tank 1	2,500 cone-bottom	95" x 105"
Tank 2	2,500 cone-bottom	95" x 105"
Tank 3	2,500 cone-bottom	95" x 105"
Tank C	3,200 flat-bottom	95" x 112"

Container Dimensions and Capacities

<i>Capacity (gallons)</i>	<i>Type</i>	<i>Dimensions (d x h)</i>
85	HDPE Overpack	31" x 33"
55	Steel	24" x 35"
55	HDPE	23" x 35"
30	Steel	20" x 29"
30	HDPE	19" x 29.5"
15	HDPE	15" x 22.5"
5	Steel bucket	12" x 13.5"
5	HDPE	11" x 10" x 14" (l x w x h)

Age of each tank (new or from the operating records of the facility)

<i>Tank Number</i>	<i>Capacity (gallons)</i>	<i>Installation Date</i>
Tank A	3,000	February 2001
Tank B	3,000	February 2001
Tank 1	2,500	April 1994
Tank 2	2,500	April 1994
Tank 3	2,500	April 2001
Tank C	3,200	April 1994

Note: This information on tank capacities and dimensions reflects the tank status after closure of Tanks D, E, and F, to be completed before this permit is issued.

3. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

The containers and tanks are not lined.

D. SECONDARY CONTAINMENT SYSTEM FOR STORAGE AREAS

Each storage area where liquid wastes are stored must have a secondary containment into which the storage devices are placed. The Applicant shall include an Engineer Certification which describes the containment designs. See Subsection G for details on certification.

The Professional Engineer's certification is included as part of this submittal.

E. STORAGE OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the Facility will transfer, or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum protective buffer distance required around each tank(s) in accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is available from the National Fire Protection Association, 1 Batterypark, Quincy, MA. 02267, Phone: (800) 344-3555.

The facility does not treat or store ignitable, corrosive, or reactive wastes. However, flammable, corrosive, or reactive wastes may be handled on a transfer basis. This activity falls under the

transportation of hazardous waste rules. The drums that are handled on a transfer basis are stored for less than ten days as allowed by Title 22, Section 66263.18 in the facility Receiving Area. The Receiving Area is at least fifty feet from the property line. These wastes handled on a transfer basis are not incompatible with facility hazardous wastes that are stored and processed.

2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

This section not applicable.

- a. Generate extreme heat or pressure, fire or explosions, or violent reactions
- b. Produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment
- c. Produce uncontrolled flammable fumes or gases in sufficient quantity to pose a risk of fire or explosions
- d. Damage the structural integrity of the container or the facility
- e. Through other means threaten human health or the environment

F. SPECIFIED AIR EMISSIONS CONTROLS

Review CCR, Title 22, section 66264.1082 (Air Emission Standards for Tanks, Surface Impoundments, and Containers) to determine whether the regulations apply at your facility. Provide all of the applicable information specified in CCR, title 22, section 66270.27 "Specific Part B Information Requirements for Air Emission Controls for Tanks, Surface Impoundments, and Containers" that applies to containers or tanks.

Air emission controls are not required for ECS Refining's storage tanks or containers.

G. ENGINEER'S CERTIFICATION

1. Engineering Certification of Tank Integrity

The purpose of this engineering certification is to verify that the tanks used to store or treat hazardous wastes have been adequately

designed for this service. A tank integrity certification shall be prepared by an independent, qualified professional engineer registered in the State of California. The tank integrity certification shall include and address the following requirements:

- a. Tanks shall have sufficient shell strength to assure that they do not collapse or rupture. This shall be verified by sonic testing to determine the actual shell thickness of each tank. Actual thicknesses shall be compared to the calculated minimum shell thickness based on operating temperature, pressure, and specific gravities of fluids stored.
- b. A statement that the tank material of construction is compatible with the hazardous waste contents.
- c. Description of tank system piping (materials of construction, pipe diameter)
- d. Description of any internal or external pumps
- e. Description of design standard(s), if available, according to which tank and ancillary equipment were constructed.
- f. Description of any spill prevention or overfill equipment
- g. Description of any corrosion protection measures
- h. Description of any structural damage or inadequate construction such as cracks punctures or damaged fittings. All shall be documented in the assessment and remedied before the tank system is certified for use.
- i. Description of any leak detection equipment
- j. Information on the documented age of the tank system. Estimated remaining service life based on findings.
- k. Leak test report that verifies current tank and attachments integrity.
- l. The certification by the independent engineer shall be written in accordance with the format specified in California Code of Regulations (CCR), title 22, section 66270.11(d).

2. Engineering Certification of Tank Secondary Containment

The purpose of the certification of the tanks secondary containment system is to confirm that there will not be any releases of hazardous waste contents to subsoil or surrounding areas in the event of a tank failure or spillage.

The secondary containment for above-ground tank systems shall include and address the following requirements:

- a. Secondary containment volume shall be greater than either 10% of the total volume of all tanks or 100% of the largest tank volume, whichever greater, plus the volume of rainfall from a 24-hour, 25-year rainstorm.
- b. The secondary containment pad and berms shall be coated with a material, to make an impervious barrier and prevent migration of spilled liquids.
- c. The coating material, used for the coating, shall be compatible with the wastes handled in the tank system.
- d. The secondary containment shall have sufficient structural strength and thickness to prevent failure due to pressure gradients, physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation.
- e. The secondary containment foundation should be capable of providing support, resistance to pressure gradients above and below the system and capable of preventing failure due to settlement, compression or uplift. The base shall be free from cracks or gaps.
- f. Verification that the secondary containment system has a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any released of hazardous waste or accumulated liquid in the secondary containment system within 24 hours.
- g. Verification of slope design and designed to remove liquids resulting from leaks, spills or precipitation.
- h. Designed or operated to prevent run-on and infiltration of precipitation into the secondary containment system from other areas within the facility.
- i. The certification by the independent engineer shall be written in

accordance with the format specified in CCR, title 22, section 66270.11(d).

The secondary containment system for below-ground tank systems shall include the following:

- a. Designed or operated to contain precipitation from a 24-hour, 25-year storm event plus the greatest of 10% of the aggregate volume of all tanks or 100% of the capacity of the largest tank within its boundary.
- b. Designed or operated to prevent run-on and infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity, in addition to that required above
- c. Constructed with chemical-resistant water stops in place at all joints. (if any)
- d. Interior impermeable coating or lining compatible with the waste being stored in order to prevent migration of waste into the concrete
- e. It should be protected against the formation of and ignition of vapors within the vault
- f. The certification by the independent engineer shall be written in accordance to the format specified in CCR, title 22, section 66270.11(d).

Secondary Containment can also be provided by utilizing double-walled tanks. The secondary containment certification for double-walled tank systems shall include the following:

- a. Designed as an integral structure so that any release from the inner tank is contained by the outer shell.
- b. Protect, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell.
- c. Provide with a built-in continuous leak detection system capable of detecting a release within 24 hours.
- d. Verification that all auxiliary equipment shall be provided with secondary containment.

- e. The certification by the independent engineer shall be written in accordance with the format specified in CCR, title 22, section 22670-11)(d).
- 3. Engineering Certification of Secondary Containment of Container Storage Areas.

The engineering certification for the secondary containment of container storage areas is the same as that for tank storage areas. The only different requirements would be the following:

- a. The containment system shall have sufficient capacity to contain precipitation from at least 24-hour, 25-year storm plus 20% of the aggregate volume of all containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination.
- 4. Engineering Certification of Compliance with Seismic Standards

The tank integrity assessment shall also include calculations in order to show that supporting structures are of sufficient strength to withstand a seismic event. This calculation will include a ground acceleration factor based on current earthquake fault data in the vicinity of the facility. DTSC is required to issue hazardous waste facility permits which meet the building standards published in the state building standards code per health and safety code section 25200(a).

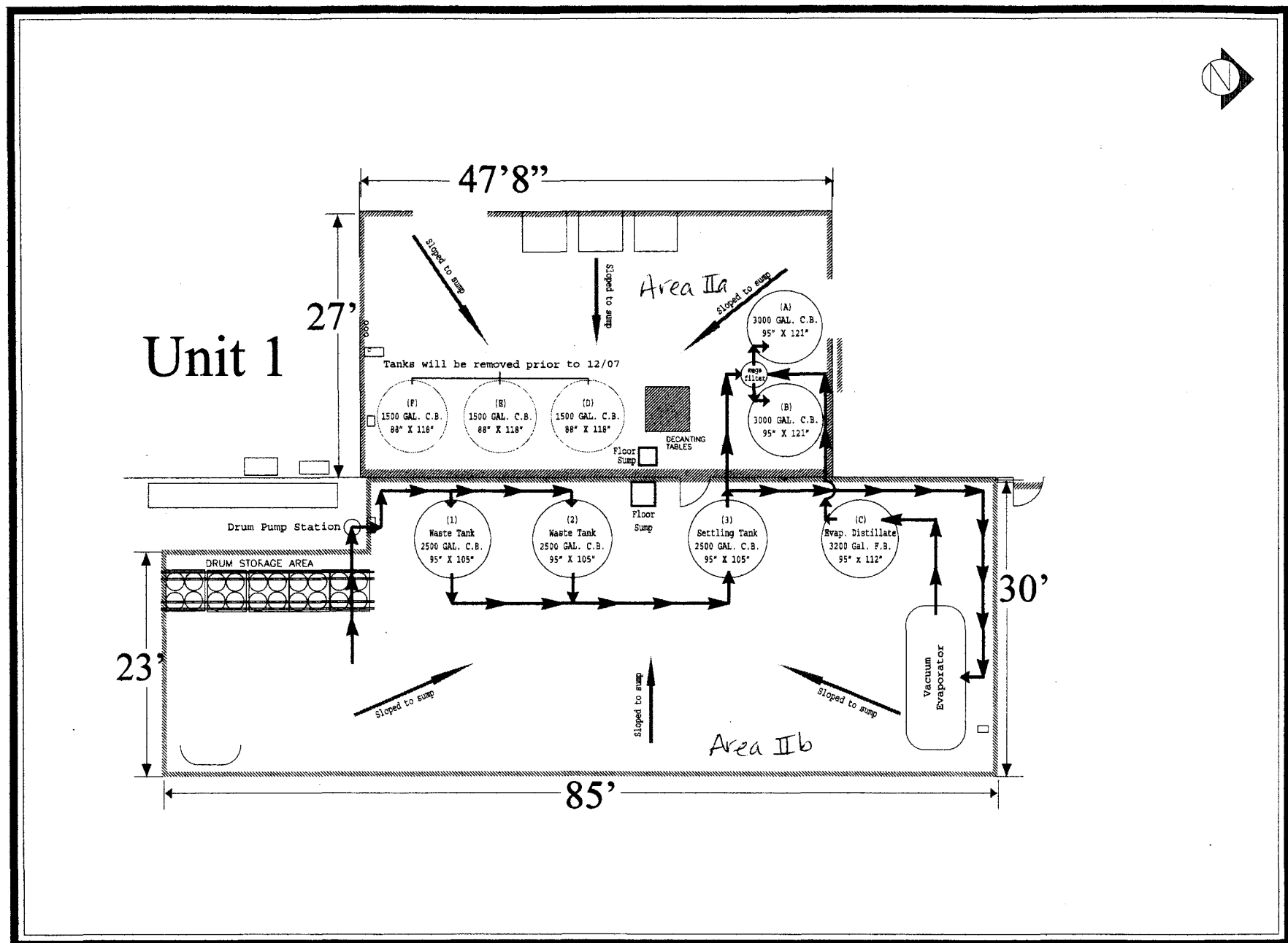
H. ENGINEER'S QUALIFICATION

- 1. Name of the registered engineer
- 2. Registration number
- 3. Engineering discipline
- 4. Date of expiration of the engineer's registration

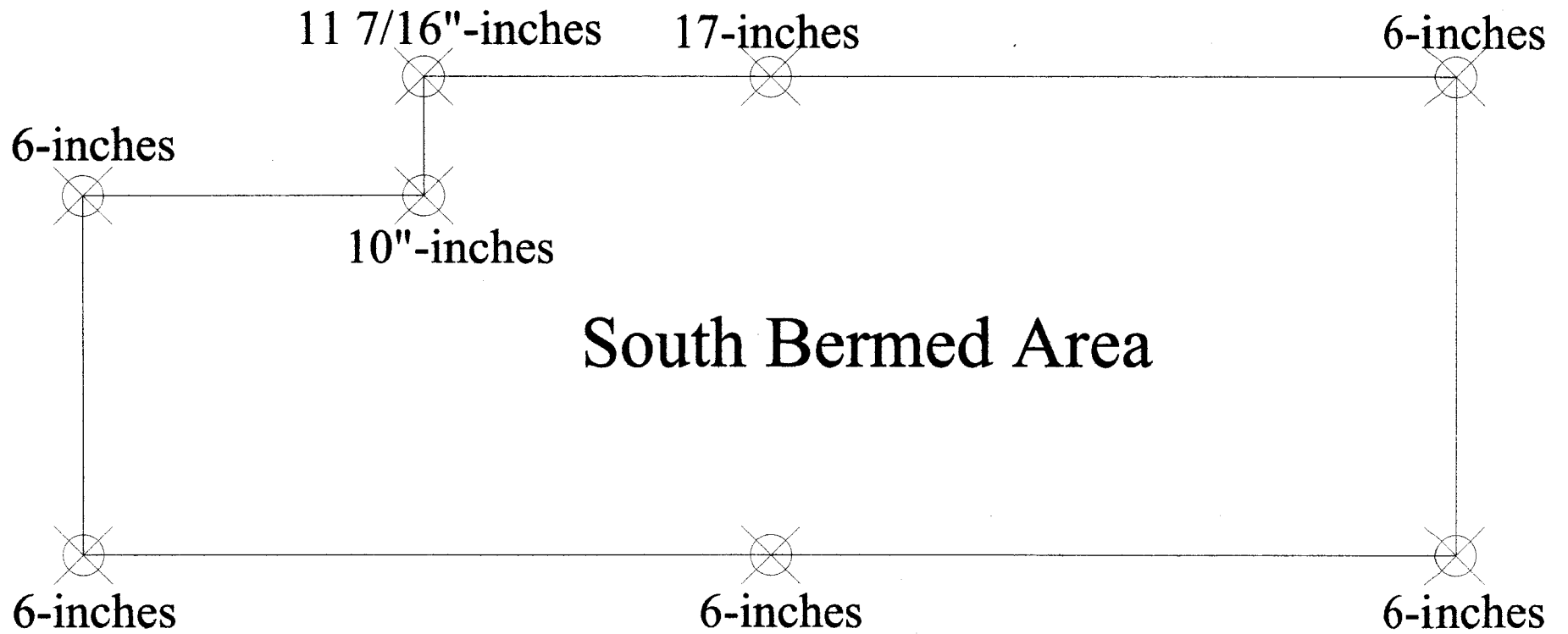
The Engineer's Certification as required by this section is located in Appendix E.

Table IV-1
Physical Properties of Wastes in Each Storage Area

Waste Stream Letter	Common Name of Hazardous Waste	EPA Waste Code	California Waste Code	Specific Gravity	pH	Flash Point	Possible Storage Area
A	Solder Dross	none	181	7.2-8.4	N/Ap	N/Ap	I, IV
B	Waste Oil	N/A	221	0.7-0.9	N/Ap	>150F	I, IV, Maintenance
C	Tin/Lead Oxides	none	181	7.5-8.5	N/Ap	N/Ap	I, IV
D	Solder Paste and Wipes	D008	181	N/Av	N/Ap	N/Ap	I, IV
E	Ash	D008	181	N/Av	N/Ap	N/Ap	I, IV
F	Photochemicals with Silver	D011	541	1.1-1.4	4.0-12.0	N/Ap	Ila, I Ib, IV
G	Treated Effluent	none	none	1.0-1.2	5.0-12.0	N/Ap	Ila, I Ib
H	Steel Wool Recovery Column	Not HW	Not HW	N/Av	N/Ap	N/Ap	Ila, I Ib, IV
I	Sludge with Silver	none	171	N/Av	N/Ap	N/Ap	Ila, I Ib, IV
J	Dry Sludge with Silver	Not HW	Not HW	N/Av	N/Ap	N/Ap	Throughout facility
K	Ag/Fe Pulp	Not HW	Not HW	N/Av	N/Ap	N/Ap	Throughout facility
L	Silver Flake	Not HW	Not HW	10.2-10.5	N/Ap	N/Ap	Throughout facility
M	Slag	Not HW	Not HW	N/Av	N/Ap	N/Ap	Throughout facility
N	Off-specification, aged or surplus inorganics	D008*	141	1.0-10.0	N/Ap	N/Ap	I, Ila, I Ib, IV
O	Laboratory chemical waste	D008*		1.0-10.0	N/Ap	>140F	I, Ila, I Ib, IV
P	Metal dust/machining waste	D008*		0.5-1.5	N/Ap	N/Ap	I, Ila, I Ib, IV
Q	Other metal-bearing sludges	D008*		3.0-4.0	4.0-9.0	N/Ap	I, Ila, I Ib, IV
R	Baghouse waste	N/A	591	0.5-1.5	N/Ap	N/Ap	I, Ila, I Ib, IV
S	Polymeric resin waste	D008*	272	N/Av	4.0-9.0	N/Ap	I, Ila, I Ib, IV
T	Filters with Silver	none	171	N/Av	N/Ap	N/Ap	I, Ila, I Ib, IV
U	Filters with Lead	none	171	N/Av	N/Ap	N/Ap	I, Ila, I Ib, IV
V	Wipes with Silver	D011	181	N/Av	N/Ap	N/Ap	I, Ila, I Ib, IV
W	Miscellaneous Residue with Silver	D011	181	N/Av	N/Ap	N/Ap	I, Ila, I Ib, IV
X	Miscellaneous Residue with Lead	D008	181	N/Av	N/Ap	N/Ap	I, Ila, I Ib, IV
Y	Metal-bearing wastewaters	D008*	121*	1.0-2.0	4.0-9.0	N/Ap	Ila, I Ib, IV
Z	Router Dust	Not HW	Not HW	0.7-0.9	N/Ap	>140F	Throughout facility
AA	Computer monitors/CRTs	Not HW	Not HW	N/Ap	N/Ap	N/Ap	Throughout facility
BB	Electronic Scrap	Not HW	Not HW	N/Ap	N/Ap	N/Ap	Throughout facility
CC	Batteries	Not HW	Not HW	N/Ap	N/Ap	N/Ap	Throughout facility
DD	Fluorescent light tubes	Not HW	Not HW	N/Ap	N/Ap	N/Ap	Throughout facility
* See Waste Analysis Plan for additional waste codes that apply							



Berm Depth



SECTION V

FACILITY DESIGN (TANKS)

SECTION V – FACILITY DESIGN (TREATMENT)

Unit #1–Photochemical Processing Unit

Unit #3—Vacuum Evaporation Unit

A. TREATMENT PROCESS DESCRIPTION AND FLOW DIAGRAM

1. Treatment process: Describe in detail all of the chemical treatment processes that are or will be done in

Unit #1 (Photochemical Processing Unit) removes the silver from liquid photochemical waste. There are two types of treatment that may occur using this unit and equipment—either metallic replacement of the silver for iron using metallic replacement cartridges, or using a proprietary chemical (S-ROM) in conjunction with carbon filtration to remove silver from the waste stream. The S-ROM precipitation also has the capability to remove small amounts of other metal contaminants, such as chromium or zinc.

The incoming photochemical waste is delivered in drums and containers. It is pumped into holding tanks prior to processing. It will then be processed by one of two methods, depending upon production needs:

Metallic Replacement Treatment is accomplished by pumping the photochemical waste waters through reusable cartridges that are packed with steel wool. The iron in the steel wool dissolves into the effluent, and the silver is deposited on the cartridge as silver metal. The resulting effluent may then be sampled and, if local limits are met, discharged to the POTW under permit. Alternatively, the effluent may be sent for off-site discharge as a non-hazardous wastewater if the silver level is below 5 mg/L. This process is not regulated as a hazardous waste treatment activity in California, since SB2111 passed in 1999 mandated that silver-only wastes be regulated in California as they are federally.

S-ROM/Carbon Precipitation S-ROM is a chemical precipitant that precipitates various dissolved metals, including silver, chromium and zinc. This process involves adding the S-ROM powder directly to a cone-bottom tank containing photochemical waste. The precipitant is allowed to settle and the treated effluent is pumped through a “mega-filter” packed with carbon and then into another holding tank for sampling. As is the case for the metallic replacement cartridge process, the effluent may either be discharged under permit to the POTW after batch sampling, or may be sent off-site as a non-hazardous wastewater if the metal concentrations are

below TCLP and STLC levels. The S-ROM sludge is harvested as needed (generally once per month) and is smelted on-site to produce a silver bar.

Unit #3 Vacuum Evaporation Unit is located within the bermed confines of Storage Area IIb. It consists of a double-effect vacuum evaporation unit designed to remove water from wastewaters with metal, primarily photochemicals with silver, but also other metal-bearing wastewaters. The tanks used to feed this unit and to contain the effluent are also used in conjunction with Unit #1.

Regardless of treatment method used, the effluent may sometimes fail to meet the local wastewater discharge limits imposed by the POTW. Each batch is sampled prior to discharge to ensure limits are met. Batches that do not meet discharge limits are reprocessed in order to meet the discharge limits.

a. Equipment used

Tanks are used to store the photochemicals prior to processing, to treat the waste using the S-ROM precipitant, and to hold the effluent prior to release.

Pumps are used to move the photochemicals from one tank through the metallic replacement columns, or through the mega-filter and into the effluent holding tanks.

The vacuum evaporation unit has associated with it a boiler and cooling tower.

b. Chemicals added

Metallic replacement cartridges do not require the addition of any chemicals.

S-ROM/Carbon Precipitation Process requires the addition of S-ROM to precipitate the silver (and other metals, if present).

c. Process type (e.g., batch, continuous, etc.)

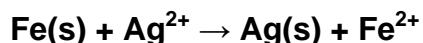
Both the metallic replacement and S-ROM processes are operated on a batch basis. The vacuum evaporation unit may be operated on a batch or continuous basis, but is usually operated as a batch unit.

d. Feed rate (e.g., gal/min., lb/hr., etc.)

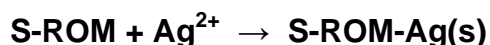
Unit #1: 1,500 gallons/day
Unit #3: 150 gallons/hour or 1,500 gallons/day

e. Chemical reactions, if any

Metallic replacement cartridges



S-ROM Precipitation Process



Unit #3—Vacuum Evaporation Unit

Wastewater with metals \rightarrow Sludge with metals + Water
(heat)

f. Products and by-products for each chemical treatment process

Metallic Replacement Cartridges The product is the silver/iron sludge contained in the cartridge, which may be dried and smelted into silver bars. The by-product is treated effluent, which may be either discharged to the POTW or sent off-site as a non-hazardous waste water.

S-ROM/Carbon Precipitation Process The product of this process is the S-ROM Silver Sludge harvested from the reaction tank, which is then smelted into silver bars. The by-products of the process are the spent carbon filter with silver and the treated effluent. The carbon filter is shipped off-site for further recovery, and the treated effluent may be either discharged to the POTW or sent off-site as a non-hazardous waste water.

Vacuum Evaporation Unit produces a metal-rich sludge as a product and distilled water as a by-product. The sludge may be smelted on-site or shipped off-site for further recovery. The water is either tested for compliance with POTW discharge requirements and discharged to the sewer, or is shipped off-site as a non-hazardous wastewater.

2. Flow Process Diagram: Include a diagram of existing or planned treatment process unit and associated treatment equipment, including all piping throughout the facility connecting treatment containers, tanks, reactors, vats, etc., showing any valves, plumbing,

pumps, process flow direction, etc

In addition, provide the following detailed information, diagrams and drawings for each tank:

- a. Indicate whether the equipment (e.g. tank) is or will be entirely or partially above and/or below ground, if applicable.

All tanks are located above ground.

- b. Indicate whether the equipment (e.g. tank) can or will be able to be entered for inspection and routine maintenance, if applicable.

All tanks associated with Unit #1 and Unit #3 may be entered for inspection and routine maintenance.

- c. Show the aisle space between containers, tanks or other equipment.

See attached drawings.

- d. If there is or will be an automatic or manual feed waste safety cutoff system, describe the hazardous waste feed safety cutoff system, if applicable.
- e. If there are or will be tanks that are uncovered and outdoors, minimum freeboard is required. Provide calculations to show that each open uncovered tank has or will have sufficient containment volume to hold the rainfall from a 24-hour, 25-year storm. Rainfall data may be obtained from the Department of Water Resources, Office of the State Meteorologist, Phone: (916) 653-5791.

Not applicable, as the tanks are located under the roof.

- f. If there is or will be a bypass system to a standby tank or a backup plan to prevent overfills, describe this system or the backup plan.
- g. If there are or will be tanks that are airtight, pressurized or under vacuum, describe the pressure control and/or pressure release controls for closed tanks such as vents and relief valves.

These tanks operate at ambient pressure, as does Unit #1. The Vacuum Evaporation Unit is under pressure. The pressure is produced by aspiration; once the fluid flow is turned off, the vacuum is released. The boiler associated with the unit shuts

off if the pressure reaches 125 psi.

- h. If there are or will be temperature controls used in any tanks, describe the temperature controls and temperature cutoff safety controls.

There are no temperature controls used in these tanks.

The Vacuum Evaporation Unit is controlled by a standard thermocouple that the operator sets according to a digital control panel. It has a shutoff mechanism if the temperature reaches a pre-set level.

- i. If there are or will be liquid level indicators used in tanks, describe the liquid level measurement devices or indicators.
- j. If there are or will be tanks that contain volatile hazardous wastes, describe the pressure relief or tank venting and vapor control systems for these tanks.

None of the wastes are volatile.

- k. If there are or will be tanks that are outdoors and made of metal, describe how each tank is protected from lightning.

All tanks are made of HDPE and are located either within the facility or are in a roofed and contained area.

- 3. For any treatment unit, furnish sampling data that shows the effectiveness of the treatment. This data should be based on sampling of untreated incoming hazardous waste and waste after treatment. The samples must be tested at a California state certified analytical laboratory.

This waste analysis information is included as an attachment.

- 4. Provide the following information concerning prevention of releases to the environment:
 - a. Describe how the facility does or will prevent any releases of hazardous waste from reaching surface soils, surface water or wetlands.

The tank system and treatment is located in an area especially designed to prevent releases of hazardous wastes from reaching soils. The areas are constructed of cement, and the

floor slopes to a sump. Any liquids spilled in the area are pumped back into the tanks for treatment. The cement floor is coated with an epoxy coating. Underneath the cement is a geotextile (Hypalon) liner that will trap any liquid that may seep through cracks in the concrete.

- b. Describe how the facility does or will prevent any releases of hazardous waste from reaching the air.

Unit #1: The photochemicals are not volatile and do not release hazardous wastes into the air.

Unit #3: The purpose of this unit is to produce water vapor. Due to the nature of photochemical waste, some ammonia vapor is also produced. The evaporation system is a closed unit system that recondenses the vapors. When effluent is treated for ammonia prior to discharge to the POTW, ammonia vapors may be released in quantities below the Bay Area Air Quality Management District threshold limits.

B. HAZARDOUS WASTES TREATED

1. Provide the name and describe the physical properties of each hazardous waste that is or will be treated in each process. Be sure that the information includes all of the following:

- a. Common waste chemical name(s)

Photochemicals with silver (F)
Metal-bearing wastewaters (Y)

- b. EPA and/or California hazardous waste number(s)

Photochemicals with Silver

EPA:	D011	California:	541
	D007		

Metal-bearing wastewaters

EPA:	D004	California:	121
	D005		132
	D006		135
	D007		721
	D008		722
	D010		724
	D011		726
			727
			728

- c. Specific gravity **Approximately 1.1**
- d. Vapor pressure, if applicable **Not Applicable**
- e. Flame point/auto-ignition temperature, if applicable

Not applicable

- f. pH **Approximately 7.5 – 8.5 (Photochemicals with silver)**

pH of Other metal-bearing wastewaters may fall outside this, between 2.5 and 11.5.

- g. Color **Clear to light brown**

C. TREATMENT DEVICE/EQUIPMENT DESCRIPTION

List all equipment to be used in each treatment process, including containers, tanks, reactors, vats, furnaces, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches

Note: These tanks are associated with Unit #1 (Steel Wool Column and S-ROM Precipitation Unit, and Unit #3, Vacuum Evaporation Unit).

	<u>Internal Dimensions (d x h)</u>	<u>Type</u>
Tank A	95" x 121"	Cone bottom
Tank B	95" x 121"	Cone bottom
Tank D	72" x 85"	Cone bottom
Tank E	62" x 58"	Cone bottom
Tank F	62" x 58"	Cone bottom
Tank 1	95" x 105"	Cone bottom
Tank 2	95" x 105"	Cone bottom
Tank 3	95" x 121"	Cone bottom
Tank C	95" x 112"	Flat bottom

Note: Tanks D, E, and F will be removed and closed prior to the issuance of this standardized permit.

2. Internal design capacity in gallons

	<u>Capacity</u>
Tank A	3,000
Tank B	3,000

Tank D	1,050
Tank E	750
Tank F	750
Tank 1	2,500
Tank 2	2,500
Tank 3	2,500
Tank C	3,200

Note: Tanks D, E, and F will be removed and closed prior to the issuance of this standardized permit.

3. Shell thickness such as wall, top, and bottom in inches

As specified by the manufacturer, all tank walls vary in thickness along the length of the tank, but are guaranteed to be a minimum of 1/4".

4. Age of each tank (new or from the operating records of the facility)

	<u>Installation Date</u>
Tank A	February 2001
Tank B	February 2001
Tank D	February 2001
Tank E	1995
Tank F	1995
Tank 1	1/1995 (moved to Area IIb 2/2001)
Tank 2	1/1995 (moved to Area IIb 2/2001)
Tank 3	April 2001
Tank C	April 1994

5. Operating temperature of each tank in degrees Fahrenheit (from design or from operating records) and operating pressure in psi.

All tanks operate at ambient temperature and pressure.

6. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

Not applicable.

D. SECONDARY CONTAINMENT DESIGN

Tank system or treatment equipment containing no free liquids and situated inside a building with an impermeable floor are exempt from

secondary containment requirements. The Applicant shall include an Engineer Certification which describes the containment designs. See **Subsection IV.G** for details on certification.

E. TREATMENT OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the facility will transfer, treat or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum protective buffer distance required around each tank(s) in accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is available from the National Fire Protection Association, 1 Batterypark, Quincy, MA., 02267, Phone: (800) 344-3555.
2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

The facility does not handle incompatible wastes. This unit does not transfer, treat or store incompatible, ignitable or reactive wastes.

- a. Generate extreme heat or pressure, fire or explosions, or violent reactions
- b. Produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment
- c. Produce uncontrolled flammable fumes or gases in sufficient quantity to pose a risk of fire or explosions
- d. Damage the structural integrity of the container or the facility
- e. Through other means threaten human health or the environment

F. SPECIFIED AIR EMISSIONS CONTROLS

The wastes treated and stored in these tanks do not contain volatile organics and are exempt from the provisions of Title 22, Section

66264.1082. The facility does maintain an air permit from the Bay Area Air Quality Management District and no air emission controls are required on this equipment.

G. ENGINEER'S CERTIFICATION OF TANK INTEGRITY AND SECONDARY CONTAINMENT

If treatment is conducted in tanks or containers please refer to **Section IV.G** for details on tank integrity engineering certification and secondary containment engineering certification.

H. ENGINEER'S QUALIFICATION

1. Refer to **Section IV.H** for details of Engineer's qualifications for certifications.

SECTION V – FACILITY DESIGN (TREATMENT)

Unit #7–Hot Pot Furnace Unit

A. TREATMENT PROCESS DESCRIPTION AND FLOW DIAGRAM

1. Treatment process: Describe in detail all of the chemical treatment processes that are or will be done in

Unit #7 (Hot Pot) is a gas-fired pot crucible furnace used to melt silver flake into silver bars. It may also be used for recovery of small lots of other precious metals such as platinum and palladium. The furnace is generally used for non-hazardous and unregulated wastes.

- a. Equipment used

Silicon carbide crucible is used and lasts approximately 20 melts. Material is manually added to the crucible using a shovel or scoop.

- b. Chemicals added

Fluxing agents are used to improve the quality of metal recovered and to create the slag that contains the impurities. The specific fluxing agents vary depending upon the type of melt, but may include soda ash, sulfur, or lime.

- c. Process type (e.g., batch, continuous, etc.)

The furnace operates on a batch basis.

- d. Feed rate (e.g., gal/min., lb/hr., etc.) **50 pounds per hour of melt time.**

- e. Chemical reactions, if any

Metal + Metal Compounds + Fluxing Agents → Metal + Slag

- f. Products and by-products for each chemical treatment process

Products are metal bars (typically silver, but can be other metals). The by-product is slag.

2. Flow Process Diagram: Include a diagram of existing or planned treatment process unit and associated treatment equipment,

including all piping throughout the facility connecting treatment containers, tanks, reactors, vats, etc., showing any valves, plumbing, pumps, process flow direction, etc

In addition, provide the following detailed information, diagrams and drawings for each tank:

- a. Indicate whether the equipment (e.g. tank) is or will be entirely or partially above and/or below ground, if applicable.

The unit is located above ground.

- b. Indicate whether the equipment (e.g. tank) can or will be able to be entered for inspection and routine maintenance, if applicable.

This unit is too small to enter for inspection and maintenance, but all parts are readily accessible for inspection and maintenance.

- c. Show the aisle space between containers, tanks or other equipment.

See attached drawings.

- d. If there is or will be an automatic or manual feed waste safety cutoff system, describe the hazardous waste feed safety cutoff system, if applicable.

Not applicable.

- e. If there are or will be tanks that are uncovered and outdoors, minimum freeboard is required. Provide calculations to show that each open uncovered tank has or will have sufficient containment volume to hold the rainfall from a 24-hour, 25-year storm. Rainfall data may be obtained from the Department of Water Resources, Office of the State Meteorologist, Phone: (916) 653-5791.

Not applicable, as this unit is located under the roof.

- f. If there is or will be a bypass system to a standby tank or a backup plan to prevent overfills, describe this system or the backup plan.

Not applicable.

- g. If there are or will be tanks that are airtight, pressurized or under

vacuum, describe the pressure control and/or pressure release controls for closed tanks such as vents and relief valves.

This unit operates at ambient pressure.

- h. If there are or will be temperature controls used in any tanks, describe the temperature controls and temperature cutoff safety controls.

The temperature of the furnace is regulated by gas flow. The gas flow can be manually cut off if necessary.

- i. If there are or will be liquid level indicators used in tanks, describe the liquid level measurement devices or indicators.

Not applicable.

- j. If there are or will be tanks that contain volatile hazardous wastes, describe the pressure relief or tank venting and vapor control systems for these tanks.

None of the wastes are volatile.

- k. If there are or will be tanks that are outdoors and made of metal, describe how each tank is protected from lightning.

This unit is not located outdoors.

- 3. For any treatment unit, furnish sampling data that shows the effectiveness of the treatment. This data should be based on sampling of untreated incoming hazardous waste and waste after treatment. The samples must be tested at a California state certified analytical laboratory.
- 4. Provide the following information concerning prevention of releases to the environment:
 - a. Describe how the facility does or will prevent any releases of hazardous waste from reaching surface soils, surface water or wetlands.

This unit is located indoors on the concrete pad. The materials handled in the unit are solids. Spilled material would solidify instantly.

- b. Describe how the facility does or will prevent any releases of hazardous waste from reaching the air.

The unit is vented to a baghouse to control particulate emissions.

B. HAZARDOUS WASTES TREATED

1. Provide the name and describe the physical properties of each hazardous waste that is or will be treated in each process. Be sure that the information includes all of the following:

- a. Common waste chemical name(s)

	<u>Stream Letter</u>
Silver Flake	L
Other metal-bearing sludges (dry)	Q
Metal dust/machining waste	P
Off-specification, aged or surplus inorganics	N
Laboratory chemical waste	O

- b. EPA and/or California hazardous waste number(s)

See Waste Analysis Plan, Section III.

- c. Specific gravity **Variable, but solids with high metal content**

- d. Vapor pressure, if applicable **Not Applicable**

- e. Flame point/auto-ignition temperature, if applicable

Not applicable

- f. pH **Not applicable**

- g. Color **Silver or grey**

C. TREATMENT DEVICE/EQUIPMENT DESCRIPTION

List all equipment to be used in each treatment process, including containers, tanks, reactors, vats, furnaces, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches

Crucible: 9"W x 15"H Steel Casing: 31" x 34"

2. Internal design capacity in gallons

The unit holds approximately 75 pounds of silver flake, but will hold variable amounts of other materials, based upon their density.

3. Shell thickness such as wall, top, and bottom in inches

The outer steel shell that holds the refractory is approximately ¼" thick.

4. Age of each tank (new or from the operating records of the facility)

This unit was installed in 1991.

5. Operating temperature of each tank in degrees Fahrenheit (from design or from operating records) and operating pressure in psi.

This unit operates at ambient temperature and pressure. The furnace itself generally reaches temperatures of 1700F.

6. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

The silicon carbide crucible rests in a refractory-lined chamber. The refractory is typically 2-3 inches thick.

D. SECONDARY CONTAINMENT DESIGN

This unit handles solid materials and is exempt from secondary containment requirements.

E. TREATMENT OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the facility will transfer, treat or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum protective buffer distance required around each tank(s) in accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is

available from the National Fire Protection Association, 1
Batterypark, Quincy, MA., 02267, Phone: (800) 344-3555.

2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

The facility does not handle incompatible wastes. This unit does not treat, store, or transfer ignitable, corrosive, reactive, or incompatible wastes.

F. SPECIFIED AIR EMISSIONS CONTROLS

The wastes treated and stored in these tanks do not contain volatile organics and are exempt from the provisions of Title 22, Section 66264.1082. The facility does maintain an air permit from the Bay Area Air Quality Management District and the required air emission controls are in place on this equipment. The required control consists of a baghouse for particulate control.

G. ENGINEER'S CERTIFICATION OF TANK INTEGRITY AND SECONDARY CONTAINMENT

If treatment is conducted in tanks or containers please refer to **Section IV.G** for details on tank integrity engineering certification and secondary containment engineering certification.

H. ENGINEER'S QUALIFICATION

1. Refer to **Section IV.H** for details of Engineer's qualifications for certifications.

SECTION V – FACILITY DESIGN (TREATMENT)

Unit #15–Tray Furnace

A. TREATMENT PROCESS DESCRIPTION AND FLOW DIAGRAM

1. Treatment process: Describe in detail all of the chemical treatment processes that are or will be done in

Unit #15 (Tray Furnace) is a gas-fired enclosed furnace that is used to treat tin/lead solder paste and wipes and produce bars of tin/lead solder. It is also used on non-hazardous materials, such as to prepare samples of shredded printed circuit boards for melting in the crucible furnaces.

- a. Equipment used

Enclosed steel furnace, with secondary afterburner chamber. Steel trays are used to contain the material to be melted.

- b. Chemicals added

None.

- c. Process type (e.g., batch, continuous, etc.)

The furnace operates on a batch basis.

- d. Feed rate (e.g., gal/min., lb/hr., etc.) **Approximately 25 pounds per hour of melt time.**

- e. Chemical reactions, if any

Metal + Combustible Material (e.g. plastic) → Metal + Metal Ash

- f. Products and by-products for each chemical treatment process

The product is tin/lead metal ingots. The by-product is tin/lead ash.

2. Flow Process Diagram: Include a diagram of existing or planned treatment process unit and associated treatment equipment, including all piping throughout the facility connecting treatment containers, tanks, reactors, vats, etc., showing any valves, plumbing, pumps, process flow direction, etc

In addition, provide the following detailed information, diagrams and drawings for each tank:

- a. Indicate whether the equipment (e.g. tank) is or will be entirely or partially above and/or below ground, if applicable.

The unit is located above ground.

- b. Indicate whether the equipment (e.g. tank) can or will be able to be entered for inspection and routine maintenance, if applicable.

This unit cannot be entered for inspection and maintenance, but all parts are accessible.

- c. Show the aisle space between containers, tanks or other equipment.

See attached drawings.

- d. If there is or will be an automatic or manual feed waste safety cutoff system, describe the hazardous waste feed safety cutoff system, if applicable.

Not applicable.

- e. If there are or will be tanks that are uncovered and outdoors, minimum freeboard is required. Provide calculations to show that each open uncovered tank has or will have sufficient containment volume to hold the rainfall from a 24-hour, 25-year storm. Rainfall data may be obtained from the Department of Water Resources, Office of the State Meteorologist, Phone: (916) 653-5791.

Not applicable, as this unit is located under the roof.

- f. If there is or will be a bypass system to a standby tank or a backup plan to prevent overfills, describe this system or the backup plan.

Not applicable.

- g. If there are or will be tanks that are airtight, pressurized or under vacuum, describe the pressure control and/or pressure release controls for closed tanks such as vents and relief valves.

This unit operates at ambient pressure.

- h. If there are or will be temperature controls used in any tanks, describe the temperature controls and temperature cutoff safety controls.

The temperature of the furnace is regulated by a thermocouple. The gas flow can be manually cut off if necessary. The secondary afterburning chamber is set to operate at 1900F.

- i. If there are or will be liquid level indicators used in tanks, describe the liquid level measurement devices or indicators.

Not applicable.

- j. If there are or will be tanks that contain volatile hazardous wastes, describe the pressure relief or tank venting and vapor control systems for these tanks.

None of the wastes are volatile.

- k. If there are or will be tanks that are outdoors and made of metal, describe how each tank is protected from lightning.

This unit is not located outdoors.

- 3. For any treatment unit, furnish sampling data that shows the effectiveness of the treatment. This data should be based on sampling of untreated incoming hazardous waste and waste after treatment. The samples must be tested at a California state certified analytical laboratory.
- 4. Provide the following information concerning prevention of releases to the environment:
 - a. Describe how the facility does or will prevent any releases of hazardous waste from reaching surface soils, surface water or wetlands.

This unit is located indoors on the concrete pad. The materials handled in the unit are solids. Spilled material would solidify instantly.

- b. Describe how the facility does or will prevent any releases of hazardous waste from reaching the air.

The unit is vented to a baghouse to control particulate emissions.

B. HAZARDOUS WASTES TREATED

1. Provide the name and describe the physical properties of each hazardous waste that is or will be treated in each process. Be sure that the information includes all of the following:

- a. Common waste chemical name(s)

	<u>Stream Letter</u>
Solder Paste/Wipes	D
Other metal-bearing sludges (dry)	Q
Metal dust/machining waste	P
Off-specification, aged, or surplus inorganics	N
Laboratory chemical waste	O
Filters with Silver	T
Filters with Lead	U
Wipes with Silver	V
Misc. Residue with Silver	W
Misc. Residue with Lead	X

- b. EPA and/or California hazardous waste number(s)

See Waste Analysis Plan, Section III.

- c. Specific gravity **Variable, but solids with high metal content**

- d. Vapor pressure, if applicable **Not Applicable**

- e. Flame point/auto-ignition temperature, if applicable

Not applicable

- f. pH **Not applicable**

- g. Color **Silver or grey**

C. TREATMENT DEVICE/EQUIPMENT DESCRIPTION

List all equipment to be used in each treatment process, including containers, tanks, reactors, vats, furnaces, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches

**External dimensions: 7'L x 3'W x 6'H
Dimensions of trays: 18"L x 15"W x 4"H**

2. Internal design capacity in gallons

The trays hold approximately 75 pounds of tin/lead metal. The unit can hold two trays at once.

3. Shell thickness such as wall, top, and bottom in inches

The unit is constructed of ¼" steel.

4. Age of each tank (new or from the operating records of the facility)

This unit was installed in 1991.

5. Operating temperature of each tank in degrees Fahrenheit (from design or from operating records) and operating pressure in psi.

This unit operates at ambient temperature and pressure. The main chamber of the furnace operates at 1,000F and the afterburner at a minimum temperature of 1,900F.

6. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

The Tray Furnace is constructed of a refractory-lined steel chamber and a secondary burning chamber.

D. SECONDARY CONTAINMENT DESIGN

This unit handles solid materials and is exempt from secondary containment requirements.

E. TREATMENT OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the facility will transfer, treat or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum protective buffer distance required around each tank(s) in

accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is available from the National Fire Protection Association, 1 Batterypark, Quincy, MA., 02267, Phone: (800) 344-3555.

2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

The facility does not handle incompatible wastes. This unit does not treat, store, or transfer incompatible, ignitable, reactive or corrosive wastes.

F. SPECIFIED AIR EMISSIONS CONTROLS

The waste treated in this unit does not contain volatile organics and is exempt from the provisions of Title 22, Section 66264.1082. The facility does maintain an air permit from the Bay Area Air Quality Management District and the required air emission controls are in place on this equipment. The required control consists of a baghouse for particulate control.

G. ENGINEER'S CERTIFICATION OF TANK INTEGRITY AND SECONDARY CONTAINMENT

If treatment is conducted in tanks or containers please refer to **Section IV.G** for details on tank integrity engineering certification and secondary containment engineering certification.

H. ENGINEER'S QUALIFICATION

1. Refer to **Section IV.H** for details of Engineer's qualifications for certifications.

SECTION V – FACILITY DESIGN (TREATMENT)

Unit #20—600 Crucible Furnace

Unit #21—430 Crucible Furnace

A. TREATMENT PROCESS DESCRIPTION AND FLOW DIAGRAM

1. Treatment process: Describe in detail all of the chemical treatment processes that are or will be done in

Unit #20 (600 Crucible Furnace) and Unit #21 (430 Crucible Furnace) are gas-fired tilt crucible furnaces used to melt samples of printed circuit boards with copper for assay purposes.

Unit #22 is not regulated. It is a reverberatory furnace that processes unregulated silver-only sludges and steel wool with silver.

- a. Equipment used

Silicon carbide crucible is used and lasts approximately 20 melts. Material is manually added to the crucible using a shovel or scoop.

- b. Chemicals added

Fluxing agents are used to improve the quality of metal recovered and to create the slag that contains the impurities. The specific fluxing agents vary depending upon the type of melt, but may include soda ash, sulfur, or lime.

- c. Process type (e.g., batch, continuous, etc.)

The furnace operates on a batch basis.

- d. Feed rate (e.g., gal/min., lb/hr., etc.)

Process rates vary depending upon the material processed; the following are average rates:

600 Furnace:	360 lbs/hr
430 Furnace:	260 lbs/hr

- e. Chemical reactions, if any

Metal + Metal Compounds + Fluxing Agents → Metal + Slag

- f. Products and by-products for each chemical treatment process

Products are metal bars (typically silver, but can be other metals). The by-product is slag.

- 2. Flow Process Diagram: Include a diagram of existing or planned treatment process unit and associated treatment equipment, including all piping throughout the facility connecting treatment containers, tanks, reactors, vats, etc., showing any valves, plumbing, pumps, process flow direction, etc

In addition, provide the following detailed information, diagrams and drawings for each tank:

- a. Indicate whether the equipment (e.g. tank) is or will be entirely or partially above and/or below ground, if applicable.

The unit is located above ground.

- b. Indicate whether the equipment (e.g. tank) can or will be able to be entered for inspection and routine maintenance, if applicable.

This unit is too small to enter for inspection and maintenance, but all parts are readily accessible for inspection and maintenance.

- c. Show the aisle space between containers, tanks or other equipment.

See attached drawings.

- d. If there is or will be an automatic or manual feed waste safety cutoff system, describe the hazardous waste feed safety cutoff system, if applicable.

Not applicable.

- e. If there are or will be tanks that are uncovered and outdoors, minimum freeboard is required. Provide calculations to show that each open uncovered tank has or will have sufficient containment volume to hold the rainfall from a 24-hour, 25-year storm. Rainfall data may be obtained from the Department of Water Resources, Office of the State Meteorologist, Phone: (916) 653-5791.

Not applicable, as this unit is located under the roof.

- f. If there is or will be a bypass system to a standby tank or a backup plan to prevent overfills, describe this system or the backup plan.

Not applicable.

- g. If there are or will be tanks that are airtight, pressurized or under vacuum, describe the pressure control and/or pressure release controls for closed tanks such as vents and relief valves.

This unit operates at ambient pressure.

- h. If there are or will be temperature controls used in any tanks, describe the temperature controls and temperature cutoff safety controls.

The temperature of the furnace is regulated by gas flow. The gas flow can be manually cut off if necessary.

- i. If there are or will be liquid level indicators used in tanks, describe the liquid level measurement devices or indicators.

Not applicable.

- j. If there are or will be tanks that contain volatile hazardous wastes, describe the pressure relief or tank venting and vapor control systems for these tanks.

None of the wastes are volatile.

- k. If there are or will be tanks that are outdoors and made of metal, describe how each tank is protected from lightning.

This unit is not located outdoors.

- 3. For any treatment unit, furnish sampling data that shows the effectiveness of the treatment. This data should be based on sampling of untreated incoming hazardous waste and waste after treatment. The samples must be tested at a California state certified analytical laboratory.
- 4. Provide the following information concerning prevention of releases to the environment:
 - a. Describe how the facility does or will prevent any releases of hazardous waste from reaching surface soils, surface water or

wetlands.

This unit is located indoors on the concrete pad. The materials handled in the unit are solids. Spilled material would solidify instantly.

- b. Describe how the facility does or will prevent any releases of hazardous waste from reaching the air.

The unit is vented to a baghouse to control particulate emissions.

B. HAZARDOUS WASTES TREATED

1. Provide the name and describe the physical properties of each hazardous waste that is or will be treated in each process. Be sure that the information includes all of the following:

- a. Common waste chemical name(s)

	<u>Stream Letter</u>
Silver Flake	L
Other metal-bearing sludges (dry)	Q
Metal dust/machining waste	P
Off-specification, aged or surplus inorganics	N
Laboratory chemical waste	O

- b. EPA and/or California hazardous waste number(s)

See Waste Analysis Plan, Section III.

- c. Specific gravity **Variable, but solids with high metal content**

- d. Vapor pressure, if applicable **Not Applicable**

- e. Flame point/auto-ignition temperature, if applicable

Not applicable

- f. pH **Not applicable**

- g. Color **Silver or grey**

C. TREATMENT DEVICE/EQUIPMENT DESCRIPTION

List all equipment to be used in each treatment process, including containers, tanks, reactors, vats, furnaces, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches

600 Crucible: 24"W x 37"H

430 Crucible: 18"W x 27"H

The crucibles are placed within a refractory-lined steel shell.

2. Internal design capacity in gallons

The size of the furnaces refers to the pounds of aluminum each will hold; the 600 furnace holds 600 pounds of aluminum, etc. Each furnace will hold varying amounts of other materials, based on their density. Each of the crucibles may be filled to within four inches of the top. Volume capacity of the 600 furnace is 24 gallons; volume capacity of the 430 furnace is 16 gallons.

3. Shell thickness such as wall, top, and bottom in inches

The outer steel shell that holds the refractory is approximately ¼" thick.

4. Age of each tank (new or from the operating records of the facility)

600 Furnace was originally installed in 1985. 430 Furnace was originally installed in 1980.

5. Operating temperature of each tank in degrees Fahrenheit (from design or from operating records) and operating pressure in psi.

The furnaces operate at approximately 1500F – 2000F with a maximum operating temperature of 2400F.

6. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

The silicon carbide crucible rests in a refractory-lined chamber. The refractory is typically 2-3 inches thick.

D. SECONDARY CONTAINMENT DESIGN

This unit handles solid materials and is exempt from secondary containment requirements.

E. TREATMENT OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the facility will transfer, treat or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum protective buffer distance required around each tank(s) in accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is available from the National Fire Protection Association, 1 Batterypark, Quincy, MA., 02267, Phone: (800) 344-3555.
2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

The facility does not handle incompatible wastes. This unit does not treat, store, or transfer incompatible, ignitable, reactive or corrosive wastes.

F. SPECIFIED AIR EMISSIONS CONTROLS

The wastes treated and stored in these tanks do not contain volatile organics and are exempt from the provisions of Title 22, Section 66264.1082. The facility does maintain an air permit from the Bay Area Air Quality Management District and the required air emission controls are in place on this equipment. The required control consists of a baghouse for particulate control.

G. ENGINEER'S CERTIFICATION OF TANK INTEGRITY AND SECONDARY CONTAINMENT

If treatment is conducted in tanks or containers please refer to **Section IV.G** for details on tank integrity engineering certification and secondary containment engineering certification.

H. ENGINEER'S QUALIFICATION

1. Refer to **Section IV.H** for details of Engineer's qualifications for certifications.

SECTION V – FACILITY DESIGN (TREATMENT)

Unit #27–E-Waste/Printed Circuit Board Shredder Unit

A. TREATMENT PROCESS DESCRIPTION AND FLOW DIAGRAM

1. Treatment process: Describe in detail all of the chemical treatment processes that are or will be done in

Unit #27 (E-Waste/Printed Circuit Board Shredder) is a two shaft rotary shear shredding unit designed to shred to a specified size electronic scrap and waste, printed circuit boards, or similar materials. The prepared materials can then be beneficially recycled through primary smelters or resource recovery facilities. The permitted portion of the unit is the shredding system and is not the eddy current separation system associated with this unit.

- a. Equipment used

SSI Shredder, Model 5000H

- b. Chemicals added

None.

- c. Process type (e.g., batch, continuous, etc.)

The shredder operates on a continuous basis once feeding begins.

- d. Feed rate (e.g., gal/min., lb/hr., etc.) **30,000 lbs/hr**

- e. Chemical reactions, if any

None.

- f. Products and by-products for each chemical treatment process

The product is a shredded scrap. The by-product is baghouse dust.

2. Flow Process Diagram: Include a diagram of existing or planned treatment process unit and associated treatment equipment, including all piping throughout the facility connecting treatment containers, tanks, reactors, vats, etc., showing any valves, plumbing, pumps, process flow direction, etc

In addition, provide the following detailed information, diagrams and drawings for each tank:

- a. Indicate whether the equipment (e.g. tank) is or will be entirely or partially above and/or below ground, if applicable.

The unit is located above ground.

- b. Indicate whether the equipment (e.g. tank) can or will be able to be entered for inspection and routine maintenance, if applicable.

This unit can be entered for inspection and maintenance.

- c. Show the aisle space between containers, tanks or other equipment.

See attached drawings of the facility layout.

- d. If there is or will be an automatic or manual feed waste safety cutoff system, describe the hazardous waste feed safety cutoff system, if applicable.

The shredder is operated by a main control panel on/off switch, which also serves as an emergency off. There are also nine emergency stop buttons located at various points of the system. These nine emergency buttons include those in the eddy current conveyor system, which is not a part of the permitted portion of the unit. Any one of these switches, when activated, stops the entire system.

- e. If there are or will be tanks that are uncovered and outdoors, minimum freeboard is required. Provide calculations to show that each open uncovered tank has or will have sufficient containment volume to hold the rainfall from a 24-hour, 25-year storm. Rainfall data may be obtained from the Department of Water Resources, Office of the State Meteorologist, Phone: (916) 653-5791.

Not applicable, as this unit is located under the roof inside the A Warehouse.

- f. If there is or will be a bypass system to a standby tank or a backup plan to prevent overfills, describe this system or the backup plan.

Not applicable.

- g. If there are or will be tanks that are airtight, pressurized or under vacuum, describe the pressure control and/or pressure release controls for closed tanks such as vents and relief valves.

This unit operates at ambient pressure.

- h. If there are or will be temperature controls used in any tanks, describe the temperature controls and temperature cutoff safety controls.

This unit operates at ambient temperature.

- i. If there are or will be liquid level indicators used in tanks, describe the liquid level measurement devices or indicators.

Not applicable.

- j. If there are or will be tanks that contain volatile hazardous wastes, describe the pressure relief or tank venting and vapor control systems for these tanks.

None of the wastes are volatile.

- k. If there are or will be tanks that are outdoors and made of metal, describe how each tank is protected from lightning.

This unit is not located outdoors.

- 3. For any treatment unit, furnish sampling data that shows the effectiveness of the treatment. This data should be based on sampling of untreated incoming hazardous waste and waste after treatment. The samples must be tested at a California state certified analytical laboratory.

Not applicable, since the treatment is size reduction and not removal of hazardous constituents.

- 4. Provide the following information concerning prevention of releases to the environment:
 - a. Describe how the facility does or will prevent any releases of hazardous waste from reaching surface soils, surface water or wetlands.

This unit is located indoors on the concrete pad. The materials

handled in the unit are solids. Spilled material can be swept up and does not pose a threat to surface water or soils in the interim.

b. Describe how the facility does or will prevent any releases of hazardous waste from reaching the air.

The unit is vented to a baghouse to control particulate emissions.

B. HAZARDOUS WASTES TREATED

1. Provide the name and describe the physical properties of each hazardous waste that is or will be treated in each process. Be sure that the information includes all of the following:

a. Common waste chemical name(s)

	<u>Stream Letter</u>
Miscellaneous residue with silver	W
Miscellaneous residue with lead	X
Slag	M
Electronic scrap	BB
Computer monitors/CRTs/televisions	AA

Note that this unit handles mostly nonhazardous and universal wastes.

b. EPA and/or California hazardous waste number(s)

See Waste Analysis Plan, Section III.

c. Specific gravity **Variable, but solids with high metal content**

d. Vapor pressure, if applicable **Not Applicable**

e. Flame point/auto-ignition temperature, if applicable

Not applicable

f. pH **Not applicable**

g. Color **Variable**

C. TREATMENT DEVICE/EQUIPMENT DESCRIPTION

List all equipment to be used in each treatment process, including containers, tanks, reactors, vats, furnaces, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches

Shredder hopper is 21' 8" tall and 8' 6" across, with a depth of 8'. Shredder unit is 12' 3" wide, 6' tall and 8' deep.

2. Internal design capacity in gallons

Not applicable.

3. Shell thickness such as wall, top, and bottom in inches

The steel that constructs the unit is at least ¼" thick.

4. Age of each tank (new or from the operating records of the facility)

This unit was installed in June 2007.

5. Operating temperature of each tank in degrees Fahrenheit (from design or from operating records) and operating pressure in psi.

This unit operates at ambient temperature and pressure.

6. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

This unit is not coated or lined.

D. SECONDARY CONTAINMENT DESIGN

This unit handles solid materials and is exempt from secondary containment requirements.

E. TREATMENT OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the facility will transfer, treat or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum

protective buffer distance required around each tank(s) in accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is available from the National Fire Protection Association, 1 Batterypark, Quincy, MA., 02267, Phone: (800) 344-3555.

2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

The facility does not handle incompatible wastes. This unit does not treat, store, or transfer incompatible, ignitable, reactive or corrosive wastes.

F. SPECIFIED AIR EMISSIONS CONTROLS

The wastes treated and stored in these tanks do not contain volatile organics and are exempt from the provisions of Title 22, Section 66264.1082. The facility does maintain an air permit from the Bay Area Air Quality Management District and the required air emission controls are in place on this equipment. The required control consists of a baghouse for particulate control.

G. ENGINEER'S CERTIFICATION OF TANK INTEGRITY AND SECONDARY CONTAINMENT

If treatment is conducted in tanks or containers please refer to **Section IV.G** for details on tank integrity engineering certification and secondary containment engineering certification.

H. ENGINEER'S QUALIFICATION

1. Refer to **Section IV.H** for details of Engineer's qualifications for certifications.

SECTION V – FACILITY DESIGN (TREATMENT)

Unit #28—CRT Glass Washing Unit

A. TREATMENT PROCESS DESCRIPTION AND FLOW DIAGRAM

1. Treatment process: Describe in detail all of the chemical treatment processes that are or will be done in

Unit #28 (CRT Glass Washing Unit) is designed to remove the coatings from CRT glass to maximize the recyclability of the leaded and unleaded glass that comprises a cathode ray tube.

- a. Equipment used

Information removed due to confidential nature.

- b. Chemicals added

Information removed due to confidential nature.

- c. Process type (e.g., batch, continuous, etc.)

Information removed due to confidential nature.

- d. Feed rate (e.g., gal/min., lb/hr., etc.)

Information removed due to confidential nature.

- e. Chemical reactions, if any

Information removed due to confidential nature.

- e. Products and by-products for each chemical treatment process

Information removed due to confidential nature.

2. Flow Process Diagram: Include a diagram of existing or planned treatment process unit and associated treatment equipment, including all piping throughout the facility connecting treatment containers, tanks, reactors, vats, etc., showing any valves, plumbing, pumps, process flow direction, etc

In addition, provide the following detailed information, diagrams and drawings for each tank:

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- a. Indicate whether the equipment (e.g. tank) is or will be entirely or partially above and/or below ground, if applicable.

The unit will be located above ground.

- b. Indicate whether the equipment (e.g. tank) can or will be able to be entered for inspection and routine maintenance, if applicable.

This unit will not be entered for inspection and maintenance, though portions that need to be accessed for maintenance will be readily accessible.

- c. Show the aisle space between containers, tanks or other equipment.

See attached drawings of the facility layout.

- d. If there is or will be an automatic or manual feed waste safety cutoff system, describe the hazardous waste feed safety cutoff system, if applicable.

Information removed due to confidential nature.

- e. If there are or will be tanks that are uncovered and outdoors, minimum freeboard is required. Provide calculations to show that each open uncovered tank has or will have sufficient containment volume to hold the rainfall from a 24-hour, 25-year storm. Rainfall data may be obtained from the Department of Water Resources, Office of the State Meteorologist, Phone: (916) 653-5791.

Information removed due to confidential nature.

- f. If there is or will be a bypass system to a standby tank or a backup plan to prevent overfills, describe this system or the backup plan.

Information removed due to confidential nature.

- g. If there are or will be tanks that are airtight, pressurized or under vacuum, describe the pressure control and/or pressure release controls for closed tanks such as vents and relief valves.

Information removed due to confidential nature.

- h. If there are or will be temperature controls used in any tanks, describe the temperature controls and temperature cutoff safety

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controls.

Information removed due to confidential nature.

- i. If there are or will be liquid level indicators used in tanks, describe the liquid level measurement devices or indicators.

Information removed due to confidential nature.

- j. If there are or will be tanks that contain volatile hazardous wastes, describe the pressure relief or tank venting and vapor control systems for these tanks.

Information removed due to confidential nature.

- k. If there are or will be tanks that are outdoors and made of metal, describe how each tank is protected from lightning.

Information removed due to confidential nature.

3. For any treatment unit, furnish sampling data that shows the effectiveness of the treatment. This data should be based on sampling of untreated incoming hazardous waste and waste after treatment. The samples must be tested at a California state certified analytical laboratory.

Information removed due to confidential nature.

4. Provide the following information concerning prevention of releases to the environment:
 - a. Describe how the facility does or will prevent any releases of hazardous waste from reaching surface soils, surface water or wetlands.

Information removed due to confidential nature.

- b. Describe how the facility does or will prevent any releases of hazardous waste from reaching the air.

Information removed due to confidential nature.

B. HAZARDOUS WASTES TREATED

1. Provide the name and describe the physical properties of each hazardous waste that is or will be treated in each process. Be sure

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that the information includes all of the following:

- a. Common waste chemical name(s)

**Stream
Letter**

Computer monitors/CRTs/television glass

AA

Note: This material is classified as a universal waste.

- b. EPA and/or California hazardous waste number(s)

See Waste Analysis Plan, Section III.

- c. Specific gravity **Variable, but solids with high metal content**

- d. Vapor pressure, if applicable **Not Applicable**

- e. Flame point/auto-ignition temperature, if applicable

Not applicable

pH

Information removed due to confidential nature.

- f. Color **Variable**

C. TREATMENT DEVICE/EQUIPMENT DESCRIPTION

List all equipment to be used in each treatment process, including containers, tanks, reactors, vats, furnaces, etc. Describe the following if they apply to the equipment (excluding DOT-drums);

1. Internal and/or external dimensions in feet and inches

Information removed due to confidential nature.

2. Internal design capacity in gallons

Information removed due to confidential nature.

3. Shell thickness such as wall, top, and bottom in inches

Information removed due to confidential nature.

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4. Age of each tank (new or from the operating records of the facility)

Information removed due to confidential nature.

5. Operating temperature of each tank in degrees Fahrenheit (from design or from operating records) and operating pressure in psi.

Information removed due to confidential nature.

6. If the equipment will be coated or lined, describe the lining and/or coating material and thickness used inside or outside

Information removed due to confidential nature.

D. SECONDARY CONTAINMENT DESIGN

Information removed due to confidential nature.

E. TREATMENT OF IGNITABLE, CORROSIVE, OR REACTIVE HAZARDOUS WASTE

1. If the facility will transfer, treat or store ignitable, corrosive or reactive wastes, in the facility plot plan, show the locations where equipment holding ignitable or reactive hazardous wastes are or will be stored at the facility and their protective distances or buffer zone of at least 50 feet from the facility's property line. Show on the plan the minimum protective buffer distance required around each tank(s) in accordance with Table 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". Data is available from the National Fire Protection Association, 1 Batterypark, Quincy, MA., 02267, Phone: (800) 344-3555.

The unit will be located in the D Warehouse, at least fifty feet from the property line.

2. Describe the precautions taken by the facility, e.g. distances of separation between incompatible wastes and the locations of dikes, berms, or walls used to maintain the separation, to prevent reactions involving ignitable or reactive wastes which would result in any of the following:

This unit will be in a separate building from the other wastes that are recycled at ECS Refining. Additional information removed due to confidential nature of the treatment process itself.

F. SPECIFIED AIR EMISSIONS CONTROLS

The wastes treated in this unit will not contain volatile organics and is exempt from the provisions of Title 22, Section 66264.1082. The facility does maintain an air permit from the Bay Area Air Quality Management District and the District will be consulted to determine whether this unit will require any additions to the permit.

G. ENGINEER'S CERTIFICATION OF TANK INTEGRITY AND SECONDARY CONTAINMENT

If treatment is conducted in tanks or containers please refer to **Section IV.G** for details on tank integrity engineering certification and secondary containment engineering certification.

H. ENGINEER'S QUALIFICATION

1. Refer to **Section IV.H** for details of Engineer's qualifications for certifications.

Final engineer certification for this unit is pending installation of the unit.

SECTION VI

TRAINING PLAN

ATTACHMENT J

TRAINING PLAN

TRAINING PLAN

As required by the California Code of Regulations

Section 66264.16

Revised April 2008

I. PURPOSE

This training plan is designed to document the training required of employees at ECS Refining, as required by Title 22, California Code of Regulations, Section 66264.16. This document will outline how ECS Refining provides the necessary training to employees that are authorized to handle hazardous wastes, will document the relevant job descriptions for employees handling hazardous and non-hazardous wastes, and will reference other relevant plans and procedures that concern training of employees. Certain elements of the training required for employees are covered by the California Occupational Safety and Health Administration (CalOSHA) regulations, as noted.

The training program includes information about general plant safety considerations, chemical hazards present, hazardous materials handling, the control of associated hazards, and emergency response information.

Most people realize that hazardous materials can be dangerous to human health and the environment. However, such substances do not represent a threat if they are properly handled. It is the goal of this training program to enable our employees to handle hazardous materials and wastes without endangering their health or the environment.

II. ELEMENTS OF THE TRAINING

To accomplish the goals outlined in this training plan, ECS Refining will use a combination of classroom and on-the-job training designed to help the employee do his or her job safely. Appendix I of this training plan contains job descriptions for the specific jobs at ECS Refining which involve handling hazardous or universal wastes or the paperwork associated with tracking hazardous wastes.

The elements of the training plan are as follows:

Initial Training

Initial classroom training is provided to each employee as required by 29 CFR 1910.120 (HAZWOPER) and the analogous CalOSHA regulation. This regulation requires workers at fixed hazardous waste facilities to receive twenty-four hours of initial training to perform their job duties safely. At ECS Refining, the twenty-four hour requirement is met through a combination of classroom and on-the-job training that is designed to notify the employee of potential hazards, to educate the employee about personal protective measures in place, how to safely operate machinery and processing equipment in the facility, how to correctly complete paperwork associated with tracking hazardous waste, and how to appropriately respond to emergency situations that may arise at the facility.

Initial training is provided within the first six months of an employee's date of hire. Employees are not allowed to work in an unsupervised capacity prior to receiving the initial training as required by this training plan.

Specific topics covered in the training are as follows:

<i>General Safety</i>	<i>Initial Training Required</i>	<i>Annual Refresher Required</i>
Injury and Illness Prevention Plan	Yes	No
Hazard Communication	Yes	No, only when new hazard
Hearing Conservation Program	Yes	No
Emergency Action Plan	Yes	Yes
Forklift Training and Operation	Yes	No, evaluate every 3 years
Training Plan	Yes	No
Safety Meetings and Committee	Yes	No
Electrical Safety Orders	Yes	No
Fire Safety and Extinguisher Use and Care	Yes	Yes
Portable Power Tools and Equipment	Yes	No
Hand Tools	Yes	No
Lockout/Tagout	Yes	No
Machinery and Machine Guarding	Yes	No
Personal Protective Equipment	Yes	No, only if new hazard
Respiratory Protection Plan	Yes	No, only if new hazard
Confined Spaces	Yes	No, only if change
Lead Exposure and Protection	Yes	Yes

<i>Universal Waste Regulations</i>		
CRT Management	Yes	Yes
Universal Waste Handling	Yes	Yes
Universal Waste Electronic Devices	Yes	Yes

<i>Hazardous Waste Regulations</i>	<i>Initial Training Required</i>	<i>Annual Training Required</i>
Basic waste characteristics	Yes	Yes
Use of manifest	Yes	Yes
Specifics of ECS facility management	Yes	Yes

<i>Driver Training</i>	<i>Initial Training Required</i>	<i>Annual Training Required</i>
Shipping hazardous wastes	Yes	Required every three years
DOT Drug and Alcohol Testing	Yes	No

<i>Uniform Fire Code Regulations</i>	<i>Initial Training Required</i>	<i>Annual Training Required</i>
Hazardous Materials Storage	Yes	No
Storage of Flammable Liquids	Yes	No
Emergency Escape and Aisle Spacing	Yes	No
Liquefied Petroleum Gases	Yes	No
Fire Protection Systems and Equipment	Yes	No
General Safety Precautions	Yes	No

The topics listed above are covered through a combination of classroom training and on-the-job training as applicable to ensure the employee has the necessary knowledge to conduct his or her job safely.

Classroom training is supported by use of a written training manual covering such topics as respirator use, RCRA basics, hazardous waste management, hazard communication, lead toxicology, chemical handling procedures, use of hearing protection equipment, use of protective clothing, use of the uniform hazardous waste manifest, emergency procedures, and other topics as appropriate.

Additional specific on-the-job training is given to employees prior to his or her assignment to a new task. This training covers proper use of waste management and processing equipment, emergency shut-off of processing equipment, spill cleanup and response procedures, job-specific hazards, and how to minimize hazards. On-the-job training will also cover the hazardous waste tracking paperwork associated with the job, as applicable.

Annual Refresher Training

Employees will be given annual refresher training to refresh their knowledge on applicable topics. This training may be given at one time during the year, or may be given in smaller mini-trainings as the need arises. The total amount of annual training will be at least eight hours, in accordance with HAZWOPER requirements. See the Table in Section II above for the subjects that require annual refresher training.

Safety Meetings

Safety meetings are held for plant employees and supervisors to discuss safety issues that may arise in the plant, to review safe handling and operating procedures, and to provide another training forum. These safety meetings are held quarterly, at a minimum.

III. RECORDKEEPING

To verify compliance with the measures outlined in this training plan, records are kept of employee training. These include a combination of computerized records and files for each employee. Records kept include the following:

- Records of initial training given and the topics covered
- Records of any on the job training given to employees
- Records of refresher courses given
- Record of safety meeting topics covered, suggestions given, and attendees

IV. TRAINER

All training provided to employees will be given by qualified personnel who are trained in hazardous waste management and employee health and safety issues. Training is typically conducted by the Shop Supervisor.

V. JOB DESCRIPTIONS

Each employee handling hazardous or non-hazardous waste is covered by a written job description that describes the position's hazardous waste management tasks and general tasks. An appendix of this plan describes the names of current employees at ECS Refining and their position. Because specific personnel change over time, this list must be updated to reflect the current workforce. Should the list not be current, refer to the employee's personnel file for job title information.

The job descriptions include the training requirements for each job position.

ORGANIZATION TABLE

The following organizational table lists job titles covered by this training plan. In accordance with Title 22, Section 66264.16(d), the names of persons filling the following positions at ECS Refining will be maintained on-site.

Environmental Health and Safety Manager

Environmental Health and Safety Specialist

General Manager

Administrative Assistant

Shop Supervisor

Truck Driver

Equipment Operator

Maintenance Supervisor

Repair and Maintenance Specialist

Emergency Coordinator

CRT/UWED Handlers

Unlisted positions are those in which the employee does not work with hazardous materials or wastes at any time. These employees will not work in areas where hazardous materials or wastes are stored or treated.

JOB DESCRIPTIONS AND TRAINING REQUIREMENTS

The following positions are required for hazardous waste and hazardous materials operations at the facility. Certain personnel may fill more than one job title.

In addition to the descriptions for the individual positions, all employees must be made aware that in any position at ECS Refining the employee faces possible exposure to hazardous materials. The chemicals used at ECS Refining to which an employee may be exposed are lead, zinc, copper, silver, and other metal dust, soda ash, borax, oil residue, waste photochemicals, acetylene, and oxygen. For the specific hazards of these chemicals please read the information given in the material safety data sheets (MSDS) for each chemical. The MSDSs are located in the Shop Supervisor's or Environmental Health and Safety office.

In order to prevent chemical exposure to its employees, ECS Refining requires all employees to complete a certain amount of training. The type of training required is specific for each job position. No employee will be allowed to work without supervision on tasks involving hazardous materials or hazardous wastes until the initial training program has been completed and the supervisor has observed the employee perform the specific task and has judged the employee to be competent at that task. The employees that work in unlisted positions, such as those that work exclusively in the offices, will receive Hazard Communication training (as applicable to their job position) and the portions of the Emergency Response and Contingency Plan that relate to emergency evacuation and fire drill procedures training only.

A copy of the job description and a list of the required training for that position will be given to the employee for review and will also be placed in the employee's personnel file for a permanent record. If the job changes or the employee changes jobs within the company the job description will be updated accordingly.

Job Title: Environmental Health and Safety Manager

Job Qualifications: The Environmental Manager must have a degree from an accredited college, including course work or other on-the-job training in environmental management and/or engineering courses, plus two or more years' experience at the management level in an environmental operation, preferably in a hazardous waste treatment setting.

The Environmental Health and Safety Manager must be knowledgeable regarding applicable California Health and Safety Codes, CalOSHA regulations, and regulations pertaining to the treatment, storage, and transport of hazardous waste materials.

Duties Assigned:

1. General

- a. The Environmental Health and Safety Manager is responsible for the overall environmental and safety management of the corporation.
- b. The Environmental Health and Safety Manager is also in charge of permit applications and maintenance, environmental reporting, and for the contacts with regulatory agencies needed to develop or negotiate permits and/or agreements.

2. Hazardous waste operations

- a. The Environmental Health and Safety Manager is responsible for the update of the DTSC Operation Plan, including the Waste Analysis Plan, and the Training Manual, on an annual, or more frequent basis (if necessary).
- b. He or she takes responsibility for the submission of required reports to regulatory agencies, including the DTSC Annual Report (due March 1 each year), and Special Incident Reports.
- c. The Environmental Health and Safety Manager is responsible for ensuring documentation of training needs.
- d. The Environmental Health and Safety Manager must be familiar with the overall operation of the plant, particularly in reference to hazardous waste reclamation activities. He or she will have received the following training prior to assumption of the above duties, and will receive on-going training as required for performance of the job.

Training requirements: The Environmental Manager will receive training in all sections of the training program.

Job Title: Environmental Health and Safety Specialist

Job Qualifications: Graduation from an accredited university with a degree in a technical discipline such as engineering, chemistry, or geology, plus two or more years' experience. This person must be familiar with hazardous waste management practices, environmental regulations, and implementation of worker health and safety programs.

Duties Assigned: The Environmental Health and Safety Specialist assists the Environmental Health and Safety Manager with the following:

- Ensuring that ECS Refining follows relevant environmental regulations and implements appropriate procedures in order to comply with federal, state, and local regulations
- Developing written procedures and plans for hazardous waste management as required by law
- Conducting relevant facility inspections
- Assuring facility operating permits are in order and kept up to date
- Implementing the worker training program and maintaining the appropriate records.
- Implementing the facility health and safety program and maintaining appropriate records. This includes holding regular safety meetings, conducting industrial hygiene monitoring, and handling the worker's compensation program.

Training Requirements: The Environmental Health and Safety Specialist will receive training in all sections of the training program.

Job Title: Administrative Assistant

Job Qualifications:

High school graduation, general secretarial and typing skills, accuracy and ability to work with numbers, plus two years' experience.

Duties Assigned:

1. General (50% of time): performs general office duties including typing, filing, reception, and answering the telephone.
2. Hazardous waste operations (50% of time):
 - a. Schedules hazardous and universal waste pick-ups, assist clients with completion of UHWM form. Maintains UHWM files, including preparation of forms by facility and distribution, as appropriate, to generators and DTSC.
 - b. Maintains files of generator hazardous waste profiles.
 - c. Performs other duties as required.
 - d. Will complete the following training prior to assumption of these duties, and will receive the following on-going training as required for performance of the job.

Training Requirements:

Hazard Communication Training

Emergency Response and Contingency Plan Training

Driver Training ("Shipping Hazardous Waste" and "How to Complete a Hazardous Waste Manifest")

Job Title: General Manager

Job Qualifications:

High school graduation plus five or more years' experience in equipment operation and maintenance. Prior supervisory experience is essential. Must be able to speak and read English, have good organizational abilities, be able to delegate assignments, be able to effectively supervise personnel. The General Manager must be knowledgeable and able to implement applicable regulations pertaining to the treatment, storage, and transport of hazardous waste materials. The General Manager is responsible for overall management of the plant, including work assignments, material inventory, incoming and outgoing materials, overseeing the maintenance in the plant, and ensuring relevant inspections are conducted in a timely manner.

Duties Assigned:

1. General (75% of time):

- a. Supervises all warehouse employees involved in hazardous and non-hazardous waste reclamation activities.
- b. Responsible for ensuring on the job training of new or transferred employees has been completed and for overseeing on-going training for others.
- c. Familiar with facility emergency procedures; arranges for needed repairs or replacements of equipment or supplies.

2. Hazardous waste operations (25% of time):

- a. Reviews UHWM forms for completion and accuracy; follows up if there is a problem.
- b. Conducts field tests as needed of hazardous waste materials received at the facility, or during processing.
- c. The General Manager must be familiar with plant operations particularly in reference to hazardous waste reclamation activities. He will receive on-going training as required for performance of the job, and will have received the following training prior to performing the above duties independently.

Training Requirements: The General Manager will receive training in all sections of the training program, except that he is not required to be a licensed hazardous waste driver. However, he is expected to be trained in DOT shipping and transportation requirements as they apply to transporting hazardous waste.

Job Title: Shop Supervisor

Job Qualifications:

High school graduation plus five or more years' experience in equipment operation and maintenance. Prior supervisory experience is desirable. Must be able to speak and read English, have good organizational abilities, be able to delegate assignments, be able to effectively supervise personnel. The Shop Supervisor must be knowledgeable and able to implement applicable regulations pertaining to the treatment, storage, and transport of hazardous waste materials.

Duties Assigned:

1. General (95% of time):

- d. Supervises all warehouse employees involved in hazardous and non-hazardous waste reclamation activities.
- e. Responsible for on the job training of new or transferred employees and conducting on-going training for others.
- f. Familiar with facility emergency procedures; arranges for needed repairs or replacements of equipment or supplies.

2. Hazardous waste operations (5% of time):

- d. Reviews UHWM forms for completion and accuracy; follows up if there is a problem.
- e. Conducts field tests as needed of hazardous waste materials received at the facility, or during processing.
- f. The Shop Supervisor must be familiar with plant operations particularly in reference to hazardous waste reclamation activities. He will receive on-going training as required for performance of the job, and will have received the following training prior to performing the above duties independently.

Training Requirements: The Shop Supervisor will receive training in all sections of the training program, except that he is not required to be a licensed hazardous waste driver. However, he is expected to be trained in DOT shipping and transportation requirements as they apply to transporting hazardous waste.

Job Title: Truck Driver

Job Qualifications:

High school graduation plus Class A or B Driver's License, with good driving record. No prior experience required, but must be responsible, display good common sense, be neat in appearance, and be able to relate well to customers and others.

The truck driver must be physically able to do the work; able to understand and implement regulatory requirements regarding hazardous waste materials; read and write English; and be able to understand and accurately complete UHWM and other forms as required.

Duties Assigned:

1. General (95% of time):
 - a. Determines daily schedule of customer pick-ups and deliveries and performs both tasks.
 - b. Supplies customers with empty containers for use in storing materials, to be reclaimed.
 - c. Responsible for reviewing and completing an accurate UHWM from generators.
 - d. Completes daily truck inspection and makes arrangements for repairs.
2. Hazardous waste operations (5% of time):
 - a. At pick-up assists the generator in completion of the UHWM form, if necessary.
 - b. When loading or unloading hazardous waste materials, reviews the UHWM form, checks contents listed on container label, and reconciles information on form with the generator as necessary.
 - c. The truck driver must be familiar with regulations and procedures related to the storage and treatment of hazardous materials. This employee will receive on-going training as required for performance of the job, and will have received the following training prior to performing the above duties independently.

Training Requirements: The truck drivers will receive training in all sections of the training plan except "Confined Space Entry".

Job Title: Equipment Operator

Job Qualifications:

No prior experience required, but must be responsible, display good common sense, be able to work with minimal supervision, and be safety conscious. The Equipment Operator must be physically able to do the work; able to understand and implement regulatory requirements regarding hazardous waste materials; read and write English; and be able to operate the equipment used in processing.

Duties Assigned:

1. General (note, approximately one-half of time is spent on hazardous waste reclamation activities and the remainder on non-hazardous processing activities):
 - a. Start up, load, and operate, and monitor equipment.
 - b. Must complete process control cards for materials processed, including materials added to process, and outcome.
 - c. Shut down equipment.
 - d. Unload reclaimed materials from equipment and load and store in appropriate containers in designated storage areas.
 - e. Assist in area clean-up.
2. Hazardous waste operations:
 - a. Follows recommended procedures for the treatment and storage of hazardous waste materials and observes mandated safety requirements.
 - b. This employee must receive on-going training as required for performance of the job, and will have received the following training prior to performing the above duties independently.

Training Requirements: An Equipment Operator will receive all sections of the training except Driver Training. The Equipment Operator will also receive Forklift Training if they are authorized to operate the forklift.

Job Title: CRT or Universal Waste Handler

Job Qualifications:

No prior experience required, but must be responsible, display good common sense, be able to work with minimal supervision, and be safety conscious. The CRT or Universal Waste Handler must be physically able to do the work; able to understand and implement regulatory requirements regarding hazardous waste materials; read and write English; and be able to operate the equipment used in processing.

Duties Assigned:

1. General:

- f. Start up, load, and operate, and monitor equipment.
- g. Must complete process control logs for materials processed, including materials added to process, and outcome.
- h. Shut down equipment.
- i. Unload reclaimed materials from equipment and load and store in appropriate containers in designated storage areas.
- j. Assist in area clean-up.

2. Universal waste operations:

- c. Follows recommended procedures for the treatment, storage, and packaging of universal waste materials and observes mandated safety requirements.
- d. This employee must receive on-going training as required for performance of the job, and will have received the following training prior to performing the above duties independently.

Training Requirements: A CRT or Universal Waste Handler will receive all training except Driver Training, RCRA Basics, Confined Space Entry, and Hazardous Waste Regulations. The CRT or Universal Waste Handler will also receive Forklift Training if they are authorized to operate the forklift.

Job Title: Repair and Maintenance Supervisor

Job Qualifications:

High School graduate, at least five years' experience performing repair and maintenance activities in a similar environment. Prior supervisory experience is desirable. This person must have mechanical aptitude, be proficient at welding and cutting, have experience with electrical systems, be able to perform troubleshooting and repairs, be responsible, and display good common sense. The Repair and Maintenance Supervisor must be physically able to do the work, to read and write English, and must be familiar with the types of equipment used in this facility, and must be safety conscious.

Duties Assigned:

1. General
 - a. Supervises and performs general maintenance tasks throughout the facility.
 - b. Supervises and performs troubleshooting, repairs, and installation of equipment throughout the facility.
 - c. Supervises and performs construction and welding tasks as required.
 - d. Keeps repair and maintenance records on all equipment and vehicles.
2. Hazardous waste operations
 - a. Responsible for repair and maintenance of the baghouses and solder pot.
 - b. Responsible for repair and maintenance of other equipment associated with hazardous material use, such as ventilation systems.
 - c. This employee will receive on-going training as required for performance of the job, and will have received the following training prior to performing the above duties.
 - d. Keeps repair and maintenance records on all equipment and vehicles.

Training Requirements:

The Repair and Maintenance Supervisor will receive all training except the specific Driver Training and DOT-specific training.

Job Title: Repair and Maintenance Specialist

Job Qualifications: High school graduate, prior experience is desirable, must have mechanical aptitude, must be proficient at welding and cutting, must have experience with electrical systems and be able to perform troubleshooting and repairs, must be responsible, display good common sense, be able to follow instructions and perform tasks with minimal supervision. The Repair and Maintenance Specialist must be physically able to do the work, able to read and write English, be knowledgeable about equipment used at this type of facility, and be safety conscious.

Duties Assigned:

1. General
 - a. Performs general maintenance tasks throughout facility.
 - b. Perform troubleshooting, repairs, and installation of equipment throughout facility
 - c. Will perform construction and welding tasks as required
2. Hazardous Waste Operations
 - a. Responsible for the repair and maintenance of the baghouses and the solder pot.
 - b. May be responsible for the repair and maintenance of other equipment associated with hazardous material use, such as ventilation systems, vehicles, etc..
 - c. This employee will receive on-going training as required for performance of the job and will have received the following training prior to performing the above duties independently.

Training Requirements: A Repair and Maintenance Specialist will receive all training except the Driver Training.

Job Title: Emergency Coordinator

Job Qualifications:

High school graduation plus two or more years' experience at ECS Refining or a similar facility. Prior supervisory experience is desirable. Must be able to speak and read English, have good organizational abilities, be able to delegate assignments, be able to effectively supervise personnel, and should be certified in Red Cross First Aid. The Emergency Coordinator must be knowledgeable about all of ECS Refining's operations and have sufficient authority to implement the Emergency Response and Contingency Plan.

Duties Assigned:

Please refer to the Emergency Response and Contingency Plan for the specific details and responsibilities of the Emergency Coordinator.

The Emergency Coordinator may not delegate any responsibilities to any employee but may direct the employees in the event of an emergency.

Training Requirements: The Emergency Coordinator will receive training in all sections of the training program.

APPENDIX TO TRAINING PLAN – Training Requirements Matrix

	EH&S Manager	EH&S Specialist	General Manager	Administrative Asst.	Shop Supervisor	Truck Driver	Equipment Operator	Maintenance Supvr.	Maintenance Spec.	CRT/UWED Hndler	Emergency Coord.
<i>Training Topic</i>											
Injury and Illness Prevention Plan	X	X	X		X	X	X	X	X	X	X
Hazard Communication	X	X	X	X	X	X	X	X	X	X	X
Hearing Conservation Program	X	X	X		X	X	X	X	X	X	X
Emergency Action Plan	X	X	X	X	X	X	X	X	X	X	X
Forklift Training and Operation	X	X	X		X	X	X	X	X	X	X
Training Plan	X	X	X		X	X	X	X	X	X	X
Safety Meetings and Committee	X	X	X		X	X	X	X	X	X	X
Electrical Safety Orders	X	X	X		X	X	X	X	X	X	X
Fire Safety and Extinguisher Use and Care	X	X	X		X	X	X	X	X	X	X
Portable Power Tools and Equipment	X	X	X		X	X	X	X	X	X	X
Hand Tools	X	X	X		X	X	X	X	X	X	X
Lockout/Tagout	X	X	X		X	X	X	X	X	X	X
Machinery and Machine Guarding	X	X	X		X	X	X	X	X	X	X
Personal Protective Equipment	X	X	X		X	X	X	X	X	X	X
Respiratory Protection Plan	X	X	X		X	X	X	X	X	X	X
Confined Spaces	X	X	X		X		X	X	X		X
Lead Exposure and Protection	X	X	X		X	X	X	X	X	X	X
CRT Management	X	X	X		X	X	X	X	X	X	X
Universal Waste Handling	X	X	X		X	X	X	X	X	X	X
Universal Waste Electronic Devices	X	X	X		X	X	X	X	X	X	X
Shipping/manifest hazardous wastes	X	X	X	X	X	X	X	X	X		X
DOT Drug and Alcohol Testing	X	X	X		X	X	X	X	X		X
Hazardous Materials Storage	X	X	X		X	X	X	X	X		X
Storage of Flammable Liquids	X	X	X		X	X	X	X	X		X
Emergency Escape and Aisle Spacing	X	X	X		X	X	X	X	X		X
Liquefied Petroleum Gases	X	X	X		X	X	X	X	X		X
Fire Protection Systems and Equipment	X	X	X		X	X	X	X	X		X
General Safety Precautions	X	X	X		X	X	X	X	X	X	X

Topics marked with an “X” are required for the person(s) filling that job title.

APPENDIX II -- List of Applicable Regulatory Citations

<i>General Safety</i>	<i>CalOSHA or DTSC Section</i>	<i>Federal OSHA or EPA Section</i>
Injury and Illness Prevention Plan	8 CCR 3209, 1509	Not Applicable
Hazard Communication	8 CCR 5194	29 CFR 1910.1200
Hearing Conservation Program	8 CCR 5097	29 CFR 1910.95
Emergency Action Plan	8 CCR 3220	29 CFR 1910, Subpart E
	22 CCR 66264.18	
Forklift Training and Operation	8 CCR 3668	29 CFR 1910.178
Training Plan	8 CCR 3203	No direct federal equivalent
	22 CCR 66264.16	
Safety Meetings and Committee	8 CCR 3203	No direct federal equivalent
Electrical Safety Orders	8 CCR 2299-2974	29 CFR 1910, Subpart S
Fire Safety and Extinguisher Use and Care	8 CCR 6151	29 CFR 1910, Subpart L
Portable Power Tools and Equipment	8 CCR 3557	29 CFR 1910, Subpart P
Hand Tools	8 CCR 3316	29 CFR 1910, Subpart P
Lockout/Tagout	8 CCR 4413	29 CFR 1910.147
Machinery and Machine Guarding	8 CCR 3328	29 CFR 1910, Subpart O
Personal Protective Equipment	8 CCR 5194	29 CFR 1910, Subpart I
Respiratory Protection Plan	8 CCR 3409	29 CFR 1910.134
Confined Spaces	8 CCR 5157	29 CFR 1910.146
Lead Exposure and Protection	8 CCR 5198	29 CFR 1910.1025

<i>Universal Waste Regulations</i>		
CRT Management	22 CCR 66260.22-23 22 CCR 66261.9 22 CCR 66268.1-66273.90	No federal equivalent
Universal Waste Handling	22 CCR 66273.1-90	No federal equivalent
Universal Waste Electronic Devices	22 CCR 66273.1-90	No federal equivalent

<i>Hazardous Waste Regulations</i>	<i>DTSC Section</i>	<i>US EPA Section</i>
Basic waste characteristics	22 CCR 66261.20-24	40 CFR 261.20-24
Use of manifest	22 CCR 66262.20-23	40 CFR 262.20-23
Specifics of ECS facility management	Varies	Varies

<i>Driver Training</i>	<i>DTSC Section</i>	<i>US DOT Section</i>
Shipping hazardous wastes	Not Applicable	49 CFR Part 172
DOT Drug and Alcohol Testing	Not Applicable	49 CFR Part 382

<i>Uniform Fire Code Regulations</i>	<i>UFC Citation</i>	<i>Federal Citation</i>
Hazardous Materials Storage	UFC Article 80	Not Applicable
Storage of Flammable Liquids	UFC Article 79	Not Applicable
Emergency Escape and Aisle Spacing	UFC Article 12	Not Applicable
Liquefied Petroleum Gases	UFC Article 82	Not Applicable
Fire Protection Systems and Equipment	UFC Article 10	Not Applicable
General Safety Precautions	UFC Article 11	Not Applicable

SECTION VII
INSPECTION PLAN

I. INTRODUCTION

The purpose of this inspection plan is to delineate the procedures ECS Refining uses to ensure the safe and effective handling of hazardous wastes on-site. The inspection schedule includes a review of waste handling equipment, storage areas, emergency equipment, and safety equipment. The inspections are conducted in a manner and at a frequency to help prevent an unauthorized discharge of hazardous waste or a human health threat, as required by Title 22, Section 66264.15. The inspections are divided into the following sections: waste handling equipment, waste loading/unloading areas, waste storage and accumulation areas, waste monitoring equipment, emergency response equipment, and facility safety devices. Inspection logs and forms are maintained on-site and modified to fit facility operational requirements as needed; therefore, they are not included with this inspection plan but are available on-site.

Additional inspections are performed outside the scope of hazardous waste inspections. These include preventive maintenance inspections on equipment, inspections of forklift trucks, inspections of delivery trucks, and fire safety inspections.

II. ELEMENTS OF THE INSPECTION PLAN

This section provides a brief overview of the scope of daily, weekly and monthly inspections. More specific information regarding the elements to be inspected is included in the applicable inspection forms.

Daily Inspections

- Tank system
- Facility perimeter fencing
- Loading and unloading areas
- Emergency eyewashes/showers

Weekly Inspections

- Container storage areas (aisle space, container integrity, capacity, etc.)
- Forklift inspection

Monthly Inspections

- Safety equipment
- Spill control equipment
- Fire extinguishers

Quarterly Inspections

- Fire sprinkler system

Inspection Schedule

Permitted Unit Description	Inspection Items	Inspection Frequency
General Facility	Signs, security, fence	Daily
Containers (Unit #10, Unit #11a, Unit #11b, Unit #13)	Container conditions, labels, incompatibles	Weekly
Tanks Tank # A, B, 1, 2, 3, C	Overfill controls, corrosion, releases, monitoring and leak detection equipment, secondary containment, free board	Daily
Health and Safety Equipment	Eye wash	Daily
Loading and unloading area	Spill, cracks of foundation	Daily
Emergency Response Equipment	Inventory, condition of equipment	Monthly
Furnaces: Hot Pot (Unit #7), 600 (Unit #20), 430 (Unit #21)	See inspection sheet	Monthly
Tray Furnace (Unit #15)	See inspection sheet	Monthly
Evaporator (Unit #3)	See inspection sheet	Monthly, when in use
Tank system	See inspection sheet	Monthly
E-Waste/PCBd Shredder (Unit #27)	See inspection sheet	Monthly
CRT Glass Washing Unit (#28)	See inspection sheet	Monthly

Note: The Photochemical Processing Unit (Unit #1) is part of the tank system.

III. INSPECTION PROCEDURES

IIIa. Daily Inspection

The daily inspection is designed to examine daily the most important areas of the facility operation. Inspected daily are the tank system, security measures, eyewashes or emergency showers, and the loading and unloading areas.

Tank System

- Ensure all high level switches/alarms are working properly
- Examine piping for signs of leaks such as dripping liquid or staining
- Examine tanks for any signs of leaks or cracks

Loading and Unloading Areas

- Ensure wastes are stored properly
- Examine containers for any signs of leaks
- Examine loading dock to ensure no spills have occurred

Security Measures

- Note that the facility alarm system is checked automatically by an internal test on a daily basis. No action is required by ECS personnel
- Walk around perimeter fencing to ensure it remains intact
- Ensure facility is posted with proper “Danger” signs

Eyewash/Emergency Showers

- Run water through eyewashes/emergency showers as applicable to ensure proper operation

IIIb. Weekly Hazardous Waste Container Inspection

The weekly hazardous waste container inspection is to ensure that ECS Refining is within its permitted capacity to store hazardous wastes, to ensure that all containers of hazardous waste are stored properly in permitted areas with lids and labels intact, and that proper aisle spacing of 24" is maintained. Additional information is available on-site in the inspection forms that are maintained throughout the facility.

IIIc. Monthly Safety and Emergency Equipment Inspection

On a monthly basis, the facility emergency and safety equipment is inspected to ensure it is available at the designated place and replenished properly. In addition, facility fire extinguishers are examined to ensure they are in place at the prescribed locations, are fully charged, and have been recharged by the fire extinguisher vendor within the past year. Refer to the "Monthly Safety and Emergency Equipment Inspection" sheet (current version available on-site) for additional information.

IIId. Monthly Equipment Inspections

All equipment on-site is maintained and inspected routinely by the ECS Refining maintenance department. This inspection plan covers those pieces of equipment that process hazardous wastes. Equipment is inspected monthly to ensure it is in safe operating condition and will not malfunction in such a way as to endanger human health and/or the environment. The equipment inspection sheets are available on-site for additional information.

Additional inspections that the Maintenance Department performs on equipment that processes non-hazardous wastes are outside the scope of this inspection plan.

SECTION VIII

EMERGENCY RESPONSE AND CONTINGENCY PLAN

EMERGENCY RESPONSE AND CONTINGENCY PLAN

for

ECS Refining
705 Reed Street
Santa Clara, CA 95050

Prepared By:

California Environmental Management Service Company, Inc.
1984 The Alameda, Suite 2
San Jose, California 95126

Revision date: September 2007

Beverly Pester, ECS Refining

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I. INTRODUCTION

The purpose of this plan is to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden releases of hazardous materials. The provisions of this plan must be carried out immediately whenever there is a fire, explosion, release of hazardous materials and/or wastes, earthquake, or any other incident which could threaten human health or the environment.

Efforts have been made to inform local emergency response organizations of the activities conducted at ECS Refining, as described below.

1. The Hazardous Materials Management Plan (HMMP), the Emergency Response Plan (ERP), and copies of the Material Safety Data Sheets have been provided to the following:

City of Santa Clara Fire Department

2. A letter of intent to establish formal arrangements and a copy of the Emergency Response and Contingency Plan have been provided to the following:

City of Santa Clara Police Department
City of Santa Clara
Valley Medical Center
County of Santa Clara Health Department
Office of Emergency Services (local)

Whenever any of the information changes, the organizations listed above will be sent updated information immediately. See Section X of this plan, entitled Amendment of Emergency Response Plan, for details.

Primary Police and Fire Departments

The City of Santa Clara Fire and Police Departments are the designated primary emergency response agencies.

II. EMERGENCY COORDINATOR'S DUTIES

There is at least one of the designated facility Emergency Coordinators, either on-site, or on call, at all times. The Emergency Coordinators are responsible for the direction and coordination of all emergency measures, as described herein. The Emergency Coordinators are:

Ken Taggart, Primary
Steve Ryan, Secondary
Jim Taggart, Primary Back-up
Marty Veloz, Secondary Back-up

Emergency Coordinators have the authority to direct company resources in the event of an emergency. This includes the authority to evacuate the facility, to utilize and purchase equipment and materials, and to contract with outside services and response agencies including police, fire, and clean-up crews.

All of the designated facility Emergency Coordinators are familiar with the following:

- * the Emergency Response Plan
- * the location and characteristics of the hazardous materials
- * the layout of the facility
- * the operations and activities of the facility
- * the location of all records within the facility
- * the emergency shutdown procedures
- * a general knowledge of the hazardous waste control laws and how they affect emergency response activities.

This is accomplished by providing a combination of in-house and outside training to the Emergency Coordinators whose duties do not familiarize them with these areas.

General Procedures in the Event of an Emergency

1. The Emergency Coordinators' order of priorities in any emergency (actual or imminent) are as follows:

- a. Ensure human health and safety
- b. Safeguard the environment, wildlife, and livestock
- c. Preserve and prevent damage to property
- d. Preserve and protect company property.

2. The Emergency Coordinator must notify company personnel as necessary to obtain aid and ensure human safety using the facility alarm and communication procedures. **The Emergency Coordinator must always immediately evacuate the area of an emergency or accident if any possibility for further injury exists** (see evacuation procedures). The Emergency Coordinator must also notify appropriate emergency response agencies and services, as described in this plan.

3. In the event of an accident involving the release of a hazardous material, the Emergency Coordinator must immediately identify the character, exact source, amount, and extent of the release.

4. The Emergency Coordinator must assess possible hazards to human health and the environment that may result from the emergency or accident. This includes an assessment of any indirect effects, such as would result from the run-off of contaminated solutions.

If it is determined that such hazards exist, the Emergency Coordinator must

immediately notify any response agencies whose help may be needed and any agencies who are required to be notified as to the nature of the event. (See Reporting Requirements on page 6 for additional details.)

Local Emergency Response:

Emergency number - 911

California Office of Emergency Services - (800) 852-7550 The

reports must include the following information:

- name, address, telephone number of the facility owner/operator
- name, address, telephone number of the facility
- date, time, and type of incident
- name and quantity of material(s) involved
- the extent of any injuries
- an assessment of actual or potential hazards to human health or the environment where this is applicable
- an estimate of the quantity and disposition of recovered material that resulted from the incident

5. The Emergency Coordinator must ensure that fires, explosions, and hazardous materials and/or waste releases do not occur, recur, or spread. Actions required may include:

- a. Shut down of operations
- b. Containment of hazardous materials
- c. Shut down of utilities
- d. Notification of outside emergency response agencies and services, and/or coordination of the in-house emergency response team.

See Section XI for the location and shut down procedures of utility mains. Employees who work with chemicals are trained in how to stop the flow of materials in their area and how to shut down operations in the event of an emergency. The Emergency Coordinator will direct employees when to shut down and when to start up.

6. The Emergency Coordinator will use facility personnel to contain and cleanup hazardous materials spills only if facility personnel are properly trained and equipped for the characteristics of the incident. **If there is any possibility that facility personnel are not adequately trained and equipped to respond to a particular emergency situation, the Emergency Coordinator must call for professional help.**

7. In the event of a fire, explosion, or hazardous materials release, the Emergency Coordinator must monitor for leaks, pressure build-ups, gas

generation, or rupture in valves, pipes, or other equipment, wherever there is a possibility of these problems occurring.

8. After the emergency is under control, the Emergency Coordinator must:

- a. Immediately provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from the incident, in accordance with all federal, state, and local regulations.
- b. Ensure that no materials which are incompatible with any released materials are treated, stored, or disposed of, until cleanup procedures are completed.
- c. Ensure that all emergency equipment is cleaned or replaced and is fit for use before operations are resumed. See Attachment 3 for the log form used for this purpose.
- d. Prior to resuming operations, notify the Fire Department and the Department of Toxic Substances Control that the facility has accomplished items 8a, 8b, and 8c.
- e. Record in the Operating Log and submit a report to the Fire Department, Office of Emergency Services, and to the Department of Toxic Substances Control within 15 days of the incident, which includes the following information:
 - Name, address, telephone number of the facility owner/operator.
 - Name, address, telephone number of the facility.
 - Date, time and type of incident.
 - Name and quantity of material(s) involved.
 - The extent of injuries, if any.
 - An assessment of actual or potential hazards to human health or the environment.
 - An estimate of the quantity and disposition of recovered material that resulted from the incident (if any).

III. On-Call Procedure for the Emergency Coordinator

One of the Emergency Coordinators carries with him at all times a pager so that he may be notified outside of regular business hours. The pager telephone number is posted in the shop supervisor's office and near the warehouse telephone. The on-call schedule is posted monthly in the shop supervisor's office for reference.

Pager Telephone Number: (408) 994-7798

Paging Procedure

1. Dial the pager telephone number.
2. Wait for the tone.
3. Enter the telephone number at which you may be reached, followed by the pound sign (#). This only works from a touch tone telephone.
4. To indicate there is an emergency at ECS Refining, enter "705" followed by the pound sign (#) instead of a telephone number.

IV. REPORTING REQUIREMENTS

Agency Notification: Please note that the City of Santa Clara Fire Department is the local emergency response agency and they **MUST** be contacted FIRST in the event of any emergency situation at: 911. In addition, the following agencies must also be notified, as indicated below.

Hazardous Materials and/or Waste Spill

- Santa Clara Fire Department - 911
- Office of Emergency Services - (800) 852-7550

Airborne Hazard

- BAAQMD - (415) 771-6000 ext. 4979

Groundwater, Storm Drain, or Other Public Water Contamination

- Regional Water Quality Control Board - (415) 464-1225

Hazard to a Public Waterway

- National Response Center (U.S. Coast Guard) - (800) 424-8802

Hazard to Wildlife or Its Environment

- Department of Fish & Game - (408) 649-2870 or 911

Discharge to the Sewer System

- San Jose/Santa Clara Water Pollution Control Plant
- Emergency # -(408) 279-7900

Industrial Related Injury Requiring Hospitalization

Cal/OSHA Industrial Relations Division - (408) 277-1260

Hazardous Materials Spill on Public Highway -California

Highway Patrol - 911 or (408) 277-1800

Hazardous Materials Spill on City Streets or County Roads

- Santa Clara Police Department - 911
- Santa Clara County Sheriff Department - 911

For All of the Above an incident report as per Section 11.8e is required. Incident reports must contain the following information:

1. Name and phone number of the person reporting.
2. Name and address of the facility.
3. The type of accident.
4. The time of the accident.
5. The extent of any injuries.
6. The type and amount of any chemical(s) involved.
7. The possible hazards to humans and the environment both inside and outside the facility.

The Emergency Coordinator who is at the scene of the incident must remain available to aid the responding officials.

NOTE: Spills that meet the following REPORTABLE DISCHARGE criteria must be reported to the Fire Department even if they do not pose a threat to human health or the environment:

- a. The discharge is not contained in secondary containment or by a rigid above-ground structure until it is cleaned up.
- b. It takes longer than 8 hours to clean up.
- c. It causes a deterioration of the secondary containment or rigid above-ground surface.
- d. It causes an increase in the hazard of fire or explosion, or produces flammable or toxic gases.
- e. The facility personnel are evacuated.

A RECORDABLE DISCHARGE is any discharge which meets all of the following criteria:

- a. It is from primary containment to secondary containment or to a rigid above ground surface covering that can contain the discharge until it is cleaned up.
- b. The permittee can and does clean up the discharge within eight hours and before it escapes from the secondary containment or above ground surface covering.
- c. It causes no increase in the hazard of fire or explosion, no production of flammable or poisonous gas, and no deterioration of the secondary containment or rigid above ground surface.

Any spill meeting these requirements must be immediately cleaned up and noted in the Recordable Discharge Log. See Attachment 2 for a copy of the Recordable Discharge Log.

V. COMMUNICATIONS, ALARMS, and ACCESS SYSTEMS

ECS Refining has an alarm for fire and burglary. In the event of a fire or burglary the alarm is tied into a company, Security General Alarm, that will notify the fire or police department automatically. In addition, the facility is equipped with an automatic fire sprinkler system that is also monitored by the alarm company and the local fire department.

The communication system consists of telephones located throughout the building and an intercom system.

In case of fire or chemical release:

Pull the fire alarm in case of a fire.

Yell "Fire" or "Evacuate" to the other persons in the building.

Dial 911, if possible from the building or from the neighboring building and explain the situation to the fire department.

All hazardous waste storage and processing activities are controlled indoors, with the exception of Area IIb (Evaporator Area), which is on the exterior of the building but under roof. Access to all areas is provided by roll-up doors and man doors. The roll-up doors are a minimum of 8 feet wide by 10 feet high. Main aisle ways to all areas of the plant are maintained to at least this minimum dimension. Aisle ways in the main storage areas are maintained to allow periodic inspections.

VI. EVACUATION PROCEDURES

Evacuations are announced by the Emergency Coordinator over the intercom system, or by a fire alarm.

When an evacuation is announced, employees are to stop work, shut down equipment as necessary, and go to the closest available exit. All employees must leave the facility and report to the designated assembly area. Do not run. Do not linger in entrance ways or driveways, stay together in the assigned assembly area. Follow these procedures:

1. Stay calm, think, avoid panic and confusion.
2. Stop what you are doing. If there is time, shut off any equipment you are operating. Leave by the nearest outdoor exit if safe. The main evacuation route is through the loading dock gate or the back door near the Plant Supervisor's office. Alternate routes are through the "B" Warehouse gate or through the front office.
3. Do not lock any doors as you leave.
4. In case of an emergency proceed to the nearest exit in a quick but cautious manner.

Persons requiring medical attention should be moved out of immediate danger (see Facility Map: evacuations routes and second floor for emergency exits).

5. Do not assist in fire control. Keep out of the way, stay clear of the facility and do not interfere with emergency operations.
6. Move upwind to the assembly area. This is on Grant Street, just outside the yard gate. If the prevailing wind is not blowing from the north as is typical, the meeting area will be in the direction upwind of the building, along Grant Street. Do not leave the area until directed by an Emergency Coordinator.
7. If it is safe, the Emergency Coordinator(s) will stay behind to shut down plant operations.
8. Wait for instructions from your Emergency Coordinator. Do not re-enter building unless you are told it is safe by an Emergency Coordinator.
9. The Emergency Coordinator will count all employees at the meeting place to ensure that no one has been left inside.

It is very important that each employee report outside at the assembly area to Emergency Coordinator so that everyone can be accounted for. The Emergency Coordinator is also responsible for ensuring any guests have been accounted for.

The Emergency Coordinator will notify employees when it is safe to re-enter the facility.

Employees are not to re-enter the facility without approval from the Emergency Coordinator.

Evacuation of Neighboring Facilities

The Emergency Coordinator will designate personnel to direct the evacuation of neighboring businesses, should this be required. The designee will visit each neighboring business and inform them of the evacuation personally.

VII. MEASURES TAKEN TO MINIMIZE HAZARDS OF HAZARDOUS MATERIALS RELEASES

Protection of human health and the environment are the primary goals of this contingency plan. As such, it is necessary to take every available measure to minimize the hazards of hazardous materials releases to the air, soil, or surface water.

Releases to Air

Unplanned releases to air may occur in any of the following situations

- Air pollution control equipment malfunction
- Crucible furnace leak

All air pollution control equipment is equipped with alarms. The baghouses on the crucible furnace line and the solder furnace line are equipped with temperature alarms to prevent the bags from burning and causing a release. All baghouses are given an inspection prior to each use to ensure that they are operating properly. Any sign of malfunction (dust escaping from the equipment) is immediately investigated for possible causes and the problem, if any, is fixed.

Crucible furnaces are monitored prior to each use to look for cracks and abrasions in the crucible that may develop holes during use. If a crack is noted, the crucible is changed. If a crucible develops a leak during use, the area is evacuated except for personnel necessary to shut down the operation. Once the operation is shut down, the solidified metal is cleaned up and the crucible replaced.

Releases to Soil

ECS Refining is on a site that is completely paved in order to prevent any releases to the soil. All hazardous waste processing and handling occurs indoors, or in an outdoor area covered by a roof and surrounded by a containment berm (Area IIb).

Releases to Surface Water

There are no bodies of surface water near the facility. All hazardous waste processing and handling takes place indoors (or in an outdoor area covered by a roof and surrounded by a containment berm (Area IIb)); liquids are handled in bermed areas that are underlain with a polymer liner.

VIII. FIRE AND EXPLOSION PROCEDURES

1. Determine if you or anyone else is injured or in immediate danger. Secure yourself from danger. Remove injured persons from any immediate danger.
2. Call for medical assistance if necessary.
3. Contact an Emergency Coordinator.
4. Call the Fire Department at once, tell them that there is, or potentially is, the hazard of a chemical fire involving lead fumes. This is necessary to ensure that they bring chemical spill response equipment and protective gear.
5. Post someone at entrances to the facility to direct emergency vehicles and to unlock the gate if necessary.
6. The Emergency Coordinator shall institute response actions as required, including fire fighting, facility evacuation, and shut-down procedures.
7. Do not resume any activities unless the Emergency Coordinator directs you to do so, or gives you an all clear signal.
8. In the event of a fire or explosion, involving or potentially involving, hazardous materials and/or wastes, the Emergency Coordinators and all response personnel shall be aware of the following potential hazards arising from a fire or explosion involving some or all of the following chemicals in use at ECS Refining. **Additional information on potential chemical hazards appears in the Material Safety Data Sheets, and these must be reviewed by response personnel before responding to an emergency!**

IX. EARTHQUAKE OR OTHER UNPREDICTED DISASTER PROCEDURES

1. The greatest immediate danger is posed by the possibility of being struck by falling objects, falling against a hot object, or being splashed by chemicals. Try to get away from anything that may be able to fall on, burn, or otherwise injure you. **Get away from the solder pots and furnaces.** If outdoors, stay in the open, away from any trees, structures, power lines, explosion hazards, etc. If indoors, try to get under a desk, table, bench, or in a doorway. Do not try to move during a quake unless it is absolutely necessary.
2. Follow the same procedure as for a Fire or Explosion.
3. Follow the same procedure as for a Chemical Release.
4. Be prepared to shut off the water and gas mains.
5. Be aware that electrical, gas and water lines and mains may be down, broken, and out of order, all of which may constitute hazards.
6. Do not resume any activities unless the Emergency Coordinator directs you to do so, or otherwise gives an all clear signal. The Emergency Coordinator will direct all post-earthquake response activities, until the all clear signal is given.
7. Immediately after the earthquake has ceased, or as soon there after as possible, the Emergency Coordinator will direct a post-earthquake inspection, to detect spills, leaks, and other hazardous conditions. Only personnel who have been trained in chemical safety and spill response procedures may perform the post-earthquake inspections. No one will enter an area suspected of having a gas release or structural damage. All personnel will wear the following safety equipment while performing these inspections:
 - Goggles or splash shield
 - Gloves
 - Boots
 - Chemically resistant "rainsuit"
 - Respiratory protection for toxic dust
8. Any chemical spills or leaks discovered during the post-earthquake inspection must be immediately reported to the Emergency Coordinator who will determine if the spill can be safely contained and collected with available in-house resources, or if an outside spill response contractor must be notified.

9. In the event that the post-earthquake inspection reveals signs of a chemical release which is, or may be, imminently hazardous to human health, the Emergency Coordinator must terminate the inspection, ensure that the facility has been evacuated, and contact the Santa Clara Fire Department at **911**
10. Facility personnel will follow the procedures specified below when conducting a post-earthquake inspection:
11. Only trained personnel, who have been specifically authorized by the Emergency Coordinator, may perform a post-earthquake inspection. The inspection of this area must involve at least two people to ensure a prompt response in the event of an injury or other emergency situation.
12. Should any significant problems be discovered during the post-earthquake inspection, the Emergency Coordinator will immediately direct appropriate response activities using in-house or outside professional services as necessary. Additional details on spill containment, collection, and residue disposal appears in the following section, entitled, "**Response to Chemical Release**".

X. RESPONSE TO CHEMICAL RELEASE

1. **Remove yourself from immediate danger. If necessary, such as during a release of lead fumes or dust, the Emergency Coordinator will institute EVACUATION PROCEDURES and SHUT DOWN PROCEDURES.**
2. **If there is a release of lead fumes or dust pull the fire alarm. Yell "Evacuate" to other persons nearby.**
3. **If it is safe to do so, remove injured** persons from immediate danger.
4. If a spill has occurred follow the SPILL RESPONSE PROCEDURES
5. If there is a release or imminent release to land, water, or air, or if there is a threat to human health, or if there is a spill which is beyond the capability of in-house personnel to safely and quickly clean-up: the Emergency Coordinator will immediately contact the Fire Department for assistance.
6. If there is a release or imminent release to land, water, air, or if there is a threat to human health the Emergency Coordinator will follow the procedures outlined for proper notification of the authorities, Section II.

Response to Chemical Spills

1. Determine if there are any injuries or if you or anyone else are in immediate danger. Remove injured persons from any further damage. Secure yourself from immediate danger. Call for medical assistance if necessary.
2. If the spill is still in progress, assess if there is anything you can do **SAFELY** to prevent more material from escaping into the spill area. At no time shall you perform any function that will jeopardize you or anyone around you.
3. If you have determined it is **SAFE**:
4. If the spill is from a leaking container, determine the location and extent of the leak.
5. If the spill is from a vessel that has material flowing into it, stop the flow of material into the vessel as soon as possible.
6. Contact the Santa Clara Fire Department at **911** be sure to tell them that there has been a chemical spill so that they can bring the proper spill response equipment. Also contact an Emergency Coordinator immediately.
7. The Santa Clara Fire Department and/or the Emergency Coordinator shall institute response actions as required, including spill containment and collection, and facility evacuation and shut-down procedures, as appropriate.
8. Only facility personnel who are properly trained, equipped and authorized by the Emergency Coordinator or properly trained fire fighters may institute spill containment and clean-up procedures. Do not attempt to handle a spill which

involves hazardous materials and/or wastes without authorization from the Emergency Coordinator. **Before attempting any spill containment and/or collection operations, review the Material Safety Data Sheets for the material(s) in question!**

9. Do not resume activities unless the Emergency Coordinator directs you to do so, or gives an all clear signal.
10. Chemical spills and/or leaks must be handled in specific manners as described below:
11. For small spills-follow procedures on Material Safety Data Sheet.
12. Large Spills may need outside assistance. Contact the Santa Clara County Fire Department to access the Santa Clara County Hazardous Materials Response Team.
13. **Do not attempt to clean-up any spill that is emitting a hazardous fume or gas, instead evacuate the area immediately.** Follow the chemical release procedures for release to air.
14. The facility Emergency Coordinators are responsible for complying with the mandated spill reporting and recording requirements, as outlined in the Reporting Requirements, in Section III.
15. After the spill has been contained and collected, the area must be decontaminated. Follow the decontamination procedures below.

Decontamination Procedures

Decontamination is typically performed using a water rinse, but other neutralizing solutions will be more appropriate for certain materials, as indicated in the Material Safety Data Sheets. The decontamination rinses must then be transferred into DOT-approved shipping containers and disposed of at a permitted TSD Facility. The Emergency Coordinator will select the appropriate decontamination and reinstate residue disposal methods, after reviewing the Material Safety Data Sheets and consulting with appropriate regulatory authorities. When you are working with chemicals you must take care to not contaminate any areas outside your work area. This is for worker protection from contamination and will help prevent any chemical reactions with incompatible materials.

Any employee or equipment leaving a contaminated area must be decontaminated.

If gloves or boots have become contaminated, they must be decontaminated before removal. This means they must be washed thoroughly in a solution set up for this purpose and then rinsed in clean water. Both the wash and rinse waters should be saved for disposal at a permitted facility, if necessary.

If your clothing or Tyvek suit has become wetted with chemicals you must remove it immediately and proceed to the shower. If you have been exposed to lead fumes or dust you must also immediately remove your clothing and shower. Remove contaminated clothing cautiously, taking care not to make contact with the outside of the clothing. Place clothing or tyvek suit in a drum for Class One disposal.

If you are wearing impermeable clothing it must be decontaminated before removal. Although the Tyvek suits are resistant to chemicals they shall be considered as permeable.

XI. SHUTDOWN PROCEDURES

Electrical Shutoff

Power outage - Turn off power to the furnaces, solder pots, mills, screeners, and shredder. Turn off all breakers in the panel boxes located across from the offices. Be certain that all equipment is off before turning the breakers back on.

Gas Main Shutoff

Using a large crescent wrench or pliers or the wrench chained to the gas main, turn the gas valve 90° clockwise so that valve is diagonal to pipe. Gas mains are located in the front of the building outside the front door.

Water Main Shutoff

Open the cover. Turn the handle until closed. The main water valve is located in the gravel area in front of the building near the corner of Reed and Grant Streets and is marked "water". The wrench used to close the water main is located in the foyer near the shop supervisor's office.

Welding Gas Shutoff

Be sure to shutoff all welding gasses at the tank during an emergency. Turn valve on tank to the right until it is all the way in the down and closed position.

Other

Check to see that all containers are closed, and all chemicals are safely stored.

NOTE: The shut off locations are shown on the evacuation map.

XII. EMERGENCY EQUIPMENT INSPECTION PROCEDURES

Fire Extinguishers

Fire extinguishers are certified and refilled by a licensed firm annually, and checked monthly during the monthly inspection.

Eyewash Station

The eyewash station is checked daily for performance and cleanliness. The eyewash must be flushed during the inspection to remove any particulate matter.

Alarm System

The fire and burglar alarm system performs a self test every 40 seconds when it is armed and a more extensive self test every evening when it is first armed. The system will not arm if it does not pass the self test.

Spill Clean-up and Safety Equipment

Spill clean-up equipment is replaced when used and the supply is checked monthly. An inventory will be taken monthly to insure the equipment is replaced when the inventory falls below the minimum quantities.

REPAIR AND REPLACEMENT

All equipment is repaired or replaced when necessary. Repairs will only be made by qualified persons, such as the alarm company.

XIII. AMENDMENTS TO THE EMERGENCY RESPONSE PLAN

This emergency plan shall be amended whenever:

- Applicable regulations are revised.
- The plan fails in an emergency.
- The facility changes in a way that increases the potential for fires, explosions, or releases of hazardous materials and/or wastes, or changes the response necessary in an emergency situation.
- The list of Emergency Coordinators changes.
- The list of emergency equipment changes.
- The facility changes in any other way to affect any of the information contained in this plan.

Ken Taggart is responsible for monitoring the need for amendments, making the required changes, and distributing the amended plan and for ensuring that a copy of this plan is maintained at the facility.

EMERGENCY CONTACT LIST

In the event of an Emergency, Please Contact the Following:

On Call Emergency Response Pager	(408) 994-7798
Primary Emergency Coordinator Ken Taggart, Vice President 14292 Old Wood Road Saratoga, CA 95070	Work: (408) 988-4386 Home: (408) 376-3996 Cell: (408) 472-7226
Secondary Emergency Coordinator Steve Ryan, General Manager 4472 Stonyhaven Way San Jose, CA 95111	Work: (408) 988-4386 Home: (408) 362-1798 Cell: (408) 472-7494
Third Emergency Coordinator Jim Taggart, President 320 Bellevue Court Los Altos, CA 94022	Work: (408) 988-4386 Home: (650) 941-9168 Cell: (408) 472-7522
Fourth Emergency Coordinator Marty Veloz 2666 Merganser Court Los Banos, CA 93635	Work: (408) 988-4386 Home: (209) 829-1595 Cell: (408) 472-7553

IN THE EVENT OF A FIRE OR MEDICAL EMERGENCY, CALL 911

THEN GIVE THE FOILLOWING INFORMATION:

“This is (give your name) at ECS Refining, located at 705 Reed Street in Santa Clara. The nearest cross street is Grant Street. We have an emergency (specify type of emergency) – please send help. Someone will be waiting in front of the building to direct you when you arrive (send someone to do so). Our phone number is (408) 988-4386.”

FOR ALL OTHER EMERGENCIES (CHEMICAL, ELECTRICAL, OR OTHER), CONTACT ONE OF THE EMERGENCY COORDINATORS FIRST AND GET DIRECTIONS FROM THEM.

ATTACHMENT 2
RECORDABLE DISCHARGE LOG

ECS Refining
705 Reed Street
Santa Clara, CA 95050
(408) 988-4386

Storage Facility: _____

Time/Date Discharge Discovered: _____

Amount/Type Material Discharged: _____

Cause of Discharge: _____

Corrective Action: _____

Time/Date Corrected: _____

Method of Disposal: _____

Other Comments: _____

Responsible Officer – Name/Signature/Title:

ATTACHMENT 3

**REPORTABLE DISCHARGE REPORT FORM
ECS REFINING
705 Reed Street, Santa Clara, CA 95050
(408) 988-4386**

1. Date and time of incident: _____

2. Describe incident, include: nature of accident, names and quantities of materials involved, action taken, authorities notified, name of reporter, and date of notification:

3. Injuries, if any. Describe who was injured, extent of injuries, and actions taken:

4. Actual or potential health and/or environmental hazards:

5. Recovered materials, estimated quantities and dispositions of recovered materials:

6. Name/title of person completing form: _____

7. Signature: _____

Date: _____

IMPORTANT: See *Reporting Requirements, Section III. Emergency Response Plans.*

ATTACHMENT 4

FACILITY EMERGENCY RESPONSE EQUIPMENT

The following equipment is kept at the facility for use in emergency situations:

A. Safety Equipment

<u>Minimum Quantity</u>	<u>Description</u>
	Boots - all employees are required to supply their own steel-toed leather work boots. These boots are impervious to the lead dust hazard present at the facility.
10 pair	Gloves -Heavy duty leather gloves are supplied to all workers.
12 sets	Plastic clothing - The company provides TYVEK TM coveralls from Kappler for all processing workers.
10 pair	Splash goggles - five pair of American Optical Industrial Protective Goggles (484B-40815) splash-proof goggles, along with five face shields, are kept in the front warehouse. Five extra pairs of goggles are kept in the supply room.
16	Respirators - Cabot Safety A 5 Star Standard Half Mask Dual Element Respirators with interchangeable filters (R56A dust/mist filters) and cartridges (R54A cartridges for ammonia and methyl amine). Respirators are issued to all processing employees for use during the work day and stored in their lockers when not in use. Six extra respirators are kept in the office of the shop supervisor.
6	Aprons - Heat protective aprons are stored in the front warehouse on a rack by the furnaces, and two extras are stored in the supply room.
6	Shinguards - Heat protective shin guards are stored in the front warehouse processing area. Two extras are kept in the supply room.
4	Rubber Aprons - Rubber aprons are stored in the supply room.
4	Rubber Gloves - Rubber gloves are stored in the supply room.

B. Spill Response Equipment - located in southwest corner on the A warehouse and next to the evaporator (see facility map: Emergency Equipment):

1. **Open top drums** - 17H - 55 gallon DOT approved.
2. **Scoop, shovels and dust pan**
3. **Large push brooms**
4. **Floor sweepers** are also used to pick up dust from the floors, and to ensure that solder dross dust is eliminated from the hazardous waste processing area.
5. **pH paper**
6. **Duct tape**
7. **Hoses**
8. **Chemical resistant jumpsuit**

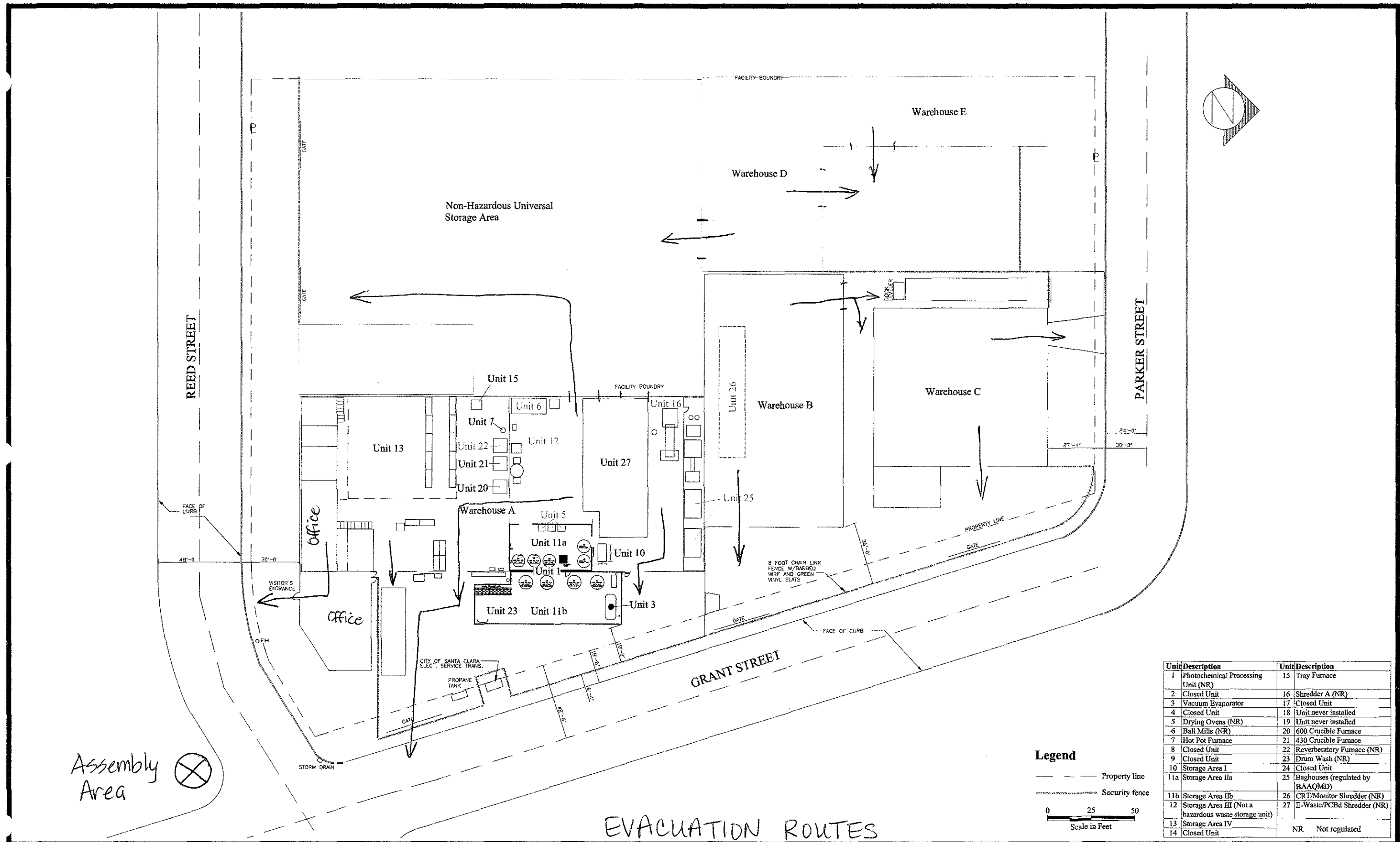
C. Other Emergency Equipment (see facility map: Emergency Equipment for select locations):

1. **Fire Sprinkler System** - The entire plant and office are covered by a heat sensitive fire sprinkler system that is alarmed and tied by phone line to the alarm company and the Santa Clara Fire Department.
2. **Fire extinguishers** - ABC type fire extinguishers and are located throughout the facility.
3. **Infra Red Heat Detector Fire/Burglar Alarm** will trigger an alarm when a temperature change of 5°F in ten seconds is detected. The alarm is monitored by an alarm company who will notify the authorities and Emergency Coordinator(s) if the alarm goes off.
4. **Material Safety Data Sheets** on hazardous materials and wastes are retained in the office of the Production Manager.
5. **Emergency eyewash and safety showers** are located just outside of the Solder processing room and in the silver processing room. A shower room with six (6) showerheads for personal employee use is located at the entrance to the facility work area. At the end of the work day, all processing workers are required to shower after removing their work clothes and prior to resuming street dress.
6. **Telephones** for summoning aid are located throughout the facility.
7. **First-aid Kit** is located in the plant lunch room.
8. **Fire Hydrant** is located in front of the building.
9. **Chemicals:** approximately 200 lbs. of sodium bicarbonate used in processing non-hazardous materials is at hand and available for use in fire fighting.
10. Room ventilation
11. Intercom system for notifying emergency evacuation

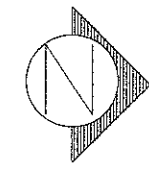
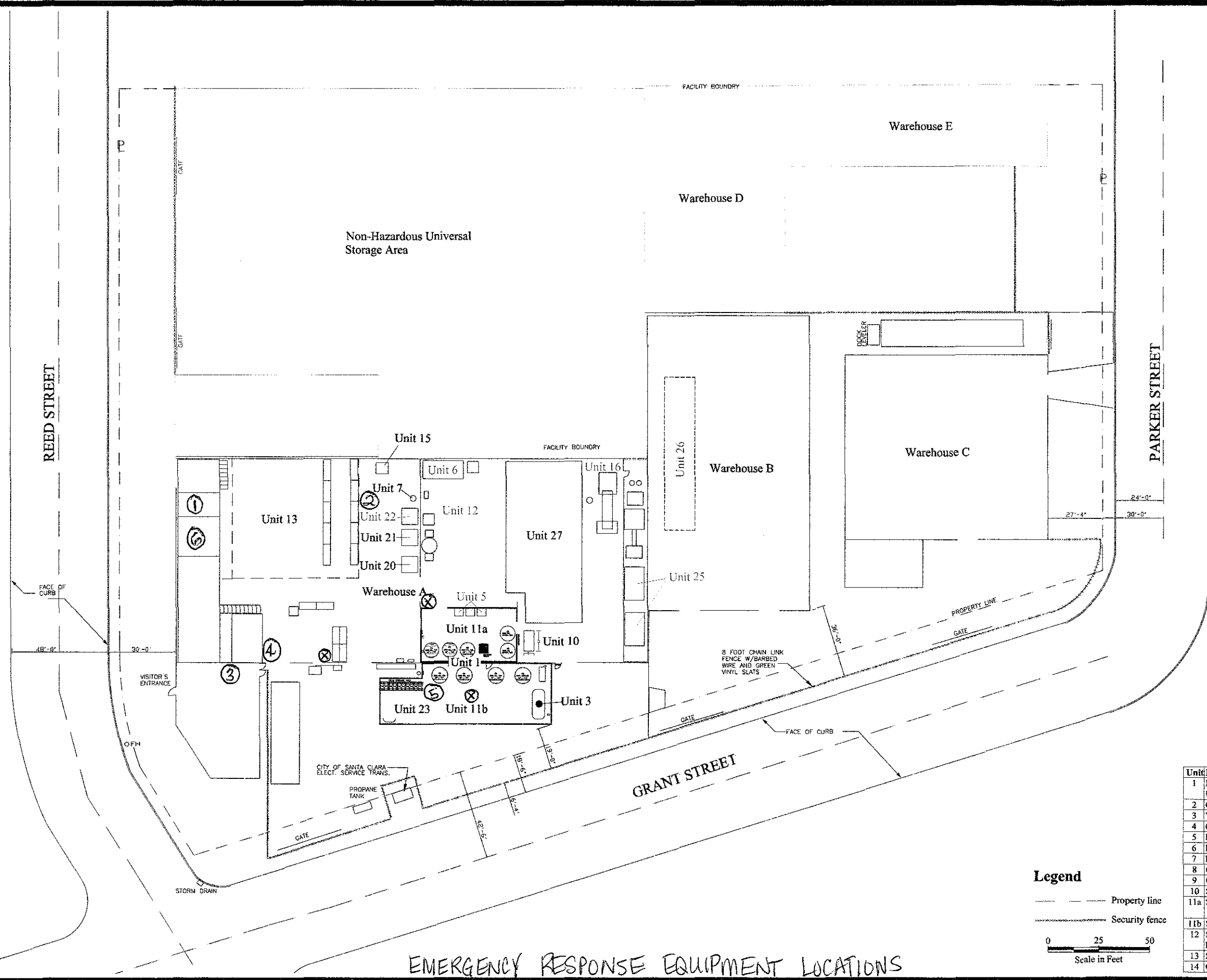
SECTION VIII
EMERGENCY RESPONSE AND CONTINGENCY PLAN

Evacuation Map

Emergency Equipment Location Map



Unit	Description	Unit	Description
1	Photochemical Processing Unit (NR)	15	Tray Furnace
2	Closed Unit	16	Shredder A (NR)
3	Vacuum Evaporator	17	Closed Unit
4	Closed Unit	18	Unit never installed
5	Drying Ovens (NR)	19	Unit never installed
6	Bali Mills (NR)	20	600 Crucible Furnace
7	Hot Pot Furnace	21	430 Crucible Furnace
8	Closed Unit	22	Reverberatory Furnace (NR)
9	Closed Unit	23	Drum Wash (NR)
10	Storage Area I	24	Closed Unit
11a	Storage Area IIa	25	Baghouses (regulated by BAAQMD)
11b	Storage Area IIb	26	CRT/Monitor Shredder (NR)
12	Storage Area III (Not a hazardous waste storage unit)	27	E-Waste/PCBd Shredder (NR)
13	Storage Area IV		
14	Closed Unit		
		NR	Not regulated



Emergency Equipment	Location
Gloves	1
Tyvek suits	1
Goggles	1, 3
Respirators	1, 3
Aprons	1, 2
Shinguards	1, 2
Rubber Aprons	1
Rubber Gloves	1
Spill Response Equipment	4, 5
Fire Sprinklers	Throughout Warehouse A
Fire extinguishers	Throughout facility
Eyewash/showers	⊗
MSDSs	3, 6
First Aid Kit	6

Unit/Description	Unit/Description
1 Photochemical Processing Unit (NR)	15 Tray Furnace
2 Closed Unit	16 Shredder A (NR)
3 Vacuum Evaporator	17 Closed Unit
4 Closed Unit	18 Unit never installed
5 Drying Ovens (NR)	19 Unit never installed
6 Ball Mills (NR)	20 600 Crucible Furnace
7 Hot Pot Furnace	21 430 Crucible Furnace
8 Closed Unit	22 Reverberatory Furnace (NR)
9 Closed Unit	23 Drum Wash (NR)
10 Storage Area I	24 Closed Unit
11a Storage Area IIa	25 Baghouses (regulated by BAAQMD)
11b Storage Area IIb	26 CRT/Monitor Shredder (NR)
12 Storage Area III (Not a hazardous waste storage unit)	27 E-Waste/PCBd Shredder (NR)
13 Storage Area IV	
14 Closed Unit	NR Not regulated

Legend

--- Property line

--- Security fence

0 25 50

Scale in Feet

EMERGENCY RESPONSE EQUIPMENT LOCATIONS



FACILITY LAYOUT - UNIT INVENTORY
ECS Refining
705 Reed Street
Santa Clara, CA 95050

SECTION IX
CLOSURE PLAN

SECTION IX—CLOSURE PLAN

1.0 Brief Overview of Facility Operations

ECS Refining recycles hazardous, non-hazardous, and universal wastes. The general types of hazardous wastes accepted are tin/lead solder dross, tin/lead solder paste and wipes, and photographic waste with silver. Non-hazardous wastes recycled are printed circuit boards and related printed circuit board manufacturing scrap. Universal wastes recycled on-site include cathode ray tubes, computer monitors, television sets, and consumer electronic devices. Fluorescent light tubes and batteries may be handled on a transfer basis but are not recycled on-site.

For closure cost estimate purposes, the closure costs to be set aside for final removal of hazardous wastes and hazardous waste processing equipment is separated from the costs set aside for final removal of CRT devices and UWEDs. The estimates for decontamination, sampling, and analysis of the concrete pad and soil underneath the site are included with the hazardous waste portion of the cost estimate, but are assumed to apply to both hazardous and universal waste closure cost estimates.

2.0 Closure Plan Overview

The facility closure plan is designed so that in the event of closure, minimal efforts will be required to shut down and maintain the facility. The policy of ECS Refining is to recycle all wastes present in the facility at the time of closure in addition to those wastes that may be generated during closure. This closure plan utilizes treatment followed by land disposal for some process residues so that closure costs will not be underestimated. However, ECS Refining intends to recycle these wastes. Due to the nature and widespread use of these materials, there is no reason to believe that this will not be a viable option at closure time. In addition, ECS Refining may elect to dispose of certain hazardous and universal waste processing equipment in a permitted hazardous waste landfill rather than decontaminate it and sample it for disposal as scrap or reuse.

This closure plan intends to close the facility such that there is no residual contamination left at the site. Therefore, the closure performance standard for the soil is background levels of metals processed on-site. However, should this closure performance standard not be attainable at the time of closure, ECS Refining will work with the Department of Toxic Substances Control to establish a risk-based closure performance standard.

The concrete pad, structures, and equipment will be decontaminated, if necessary, so that no hazardous waste characteristic is exhibited. Alternatively, ECS Refining may choose to dispose of certain pieces of equipment as hazardous waste rather than decontaminate them at time of closure. In any case, procedures used to close the components will be documented, along with any sampling and analysis conducted as part of the closure activities.

3.0 Closure Timeline

ECS Refining plans to remain open until December 31, 2060. When the decision is made to shut down, the following steps will be taken:

- (a) The facility operator will notify the DTSC at least 180 days before the intended hazardous waste facility closure date.
- (b) Customers will be notified that tin/lead solder dross, photographic chemical waste, and other residues will no longer be processed on-site as of a specified date at least 120 days before the intended closure date reported to the DTSC, as outlined in item (a) above.
- (c) No further material(s) will be accepted for treatment as of the date outlined in item (b) above. All remaining tin/lead solder dross and photographic chemical waste will be processed on-site or packaged for shipment to an off-site permitted TSD for reclamation.
- (d) Decontamination and sale, or disposal, of all equipment and hazardous materials will commence. Equipment may also be transferred to another similar facility for similar use. In this case, the decontamination standard will take into consideration the use of the equipment for similar purpose and for similar materials, and the equipment will be decontaminated so that it does not pose a threat to human health or the environment during transport.
- (e) ECS Refining will be shut down, in whole or in part, as the result of an emergency situation, court order, or planned closure.

Should the facility be closed or partially shut down, the hazardous waste transfer operations, and the other areas of the facility involving the reclamation of non-hazardous substances, could remain in operation or be gradually phased out.

To minimize or eliminate maintenance needs in the event of closure, all hazardous and universal waste residues will be removed. Equipment and structures will be decontaminated, and security measures will be taken. To exclude intruders, the facility will be locked and the intrusion alarm will be activated.

4.0 Prevention of Hazardous Material Release

Certain measures will be taken during closure operations, to prevent release of hazardous materials to the atmosphere, ground water, or surface waters. These measures are also designed to protect the general public and the environment from harm.

Existing hazardous and universal wastes (off-site generated tin/lead solder dross, tin/lead solder dross with oil residue, other residues, photographic chemical wastes, universal waste electronic devices, and cathode ray tube glass) will be treated on-site, or transferred to another permitted TSD or recycling facility for metal reclamation if that is a viable

option at closure time.

Should the facility choose to decontaminate all equipment, solder and other solid waste processing equipment will be decontaminated by scraping and vacuuming, and the residue will be shipped off-site as a hazardous waste for disposal. In the case of the photochemical solution tank system used in the silver recovery process, decontamination measures will consist of scrubbing, rinsing, and collection of the rinsate, should ECS Refining elect to decontaminate the tanks. Alternatively, the tanks may be cut into stackable pieces and shipped off-site to a permitted hazardous waste landfill as hazardous waste.

There will be no danger of hazardous waste constituents migrating to the ground or surface waters or atmosphere after closure, as they will already have been completely removed from the facility, as documented via on-site inspection and sampling.

Provisions to monitor and dispose of leachate are not applicable, as all waste processing and storage occurs indoors or above ground in covered, contained areas. These hazardous waste storage and processing areas will be completely decontaminated during the facility closure operations, so that there is no possibility of generating contaminated leachate. Similarly, contaminated rainfall is not a concern for the same reasons.

Waste decomposition products present at the site after closure are not a concern because all hazardous waste will be removed as part of the facility closure operation.

5.0 *Maximum Waste Inventory at Time of Closure – Hazardous Wastes*

The following presents an estimate of maximum hazardous waste inventory in storage and treatment at any given time during the life of the facility. This maximum waste inventory is based upon the maximum storage capacity presented in the facility's Part A Standardized Permit Notification.

SOLID HAZARDOUS WASTE STORAGE

Area	Waste Type	Drums	Quantity
I	Tin/lead solder dross	20	17,600 lbs
IIa	No solid storage		
IIb	No solid storage		
III	No hazardous waste storage		
IV	Tin/lead solder dross or similar	440	387,200 lbs
TOTAL			404,800 lbs (202.4 tons)

LIQUID HAZARDOUS WASTE STORAGE

Area	Waste Type	Drums or Tank Capacity	Quantity (gallons)
I	No liquid storage		
IIa	Photochemicals with silver	20 drums	1,100
IIa	Photochemicals with silver	Tank A Tank B	3,000 3,000
IIb	Photochemicals with silver	160 drums	8,800
IIb	Photochemicals with silver	Tank 1 Tank 2 Tank 3 Tank C	2,500 2,500 2,500 3,200
Area III	No hazardous waste storage		
Area IV	Photochemicals with silver	208 drums	11,440
TOTAL			38,040 gallons

Maximum Waste Inventory at Time of Closure – Universal Wastes

Area	Material	Quantity (lbs)
I, III, or IV	Electronic Devices (UWEDs)	300,000
Warehouse	CRT Glass	400,000

6.0 Decontamination of Facility Equipment

This plan provides for removal of the equipment and disposal at a Class I hazardous waste landfill. At the time of closure, the facility may choose to decontaminate and sample the equipment. If the facility chooses to decontaminate, an amended closure plan will be submitted. All facility waste processing and handling equipment can be decontaminated in-house. The tin/lead solder and other solids processing equipment is constructed of stainless steel and the exterior can be decontaminated by vacuuming and wiping, since the waste has not been on these surfaces and they will only be contaminated with airborne dust. The surfaces can then be scraped and then vacuumed with the HEPA filter vacuum or wiped clean. The other components can be pressure washed to assure dust particles are completely removed from the equipment. If this option were implemented, at least two confirmation wipe samples would be taken from each piece of equipment.

If the facility chooses to decontaminate the equipment used to process the liquid waste (the tank system, the reusable columns, the decanting equipment), it will be pressure washed. All wash water will be collected and sampled to determine what the best disposal/recycling alternative for it will be.

After all hazardous wastes and equipment have been removed from the facility, the liquid processing areas, loading/unloading area, and liquid storage areas will be pressure washed. To ensure that the concrete has been thoroughly decontaminated, chip samples will be taken according to the provisions outlined in Section 7.0 of this plan. The solid handling areas will be vacuumed with a HEPA filter vacuum and wet wiped to remove any residual dusts. These areas will also be chip sampled according to the sampling plan outlined in the procedures delineated in Section 7.0. The results of the analysis of the concrete chip samples will be used to confirm that no residual contaminants remain on the concrete. Provided that the concrete proves to have no contamination, the Hypalon liners in Areas IIa and IIb will be left intact and, therefore, will not require decontamination.

Facility personnel will perform the facility and equipment decontamination using all safety equipment normally worn during operations in the presence of lead dust, including gloves, face shields, and respirators.

The facility waste hauling vehicles will be decontaminated, locked, and parked within the building until they can be sold. Since all hazardous wastes transported on the vehicles are placed in closed containers which remain sealed while on the truck, the decontamination of the trucks should be minimal, if required at all.

After decontamination is complete, the building will be locked and secured with intrusion alarms connected to a 24-hour infrared sensor. Utilities, except for security lights, will be disconnected or discontinued.

All residues generated by the decontamination process, including the steam cleaning and pressure washing rinsate, will be packed in DOT-approved 55-gallon drums and transported off-site by a licensed hazardous waste hauler to a permitted TSD Facility for reclamation or disposal, as appropriate. Alternatively, it will be stored on-site in rented tanks for temporary storage to await removal in bulk.

7.0 *Sampling Plan*

7.1 *Concrete Chip Sampling Plan*

To ensure that the decontamination of the concrete in the waste storage and processing areas has been complete and that the concrete floor is not contaminated, chip samples will be taken of the concrete. The concrete chip samples will be taken at intervals of one sample for every 250 square feet of concrete floor in the hazardous waste storage and processing areas, or will be biased toward areas that appear to have staining of the concrete, if these areas exist. This includes Storage and Processing Area IIa, Storage and Processing Area IIb, Storage Area III, and the Receiving Area.

Chip samples will be analyzed for the list of 17 regulated California metals and the results compared with hazardous waste classification standards to determine if they are hazardous.

7.2 *Soil Sampling Plan*

During closure of the facility, soil samples must be taken beneath the concrete inside the facility to ensure that no contaminants have migrated through the concrete into the soil below. The areas of the A Warehouse in which ECS Refining handled or stored only solid materials are underlain with a heavy duty polymer liner, so no soil contamination is anticipated. The liquid processing areas are underlain with a Hypalon liner, which is a geotextile commonly used in solid waste landfills. Therefore, no contamination is expected in this soil, either.

After the floor decontamination, core soil samples will be collected from the hazardous waste processing areas, the hazardous waste storage areas, and the loading/unloading area. Soil sampling locations will be determined at the time of closure. Samples will be biased toward areas that appear to have the most likelihood of contamination. For example, if there are any large cracks in the concrete through which contaminants may have migrated, then the soil sampling will occur at that location. If there are no areas with evidence of spills or cracks, then samples will be taken at consistent intervals throughout the storage and processing areas. There will be a minimum of 27 soil samples collected at a depth of 6 inches below the concrete. Soil samples will be analyzed for the California list of 17 regulated metals. Selection of analytes for each sample is based upon knowledge of the materials that were processed or stored in the area sampled. Sample locations may need to be altered at time of closure, with approval from the Department of Toxic Substances Control staff, in order to obtain the samples relevant to conditions on site at the time of closure.

8.0 *Sampling Quality Assurance and Quality Control Measures*

In order to assure the validity of the sampling results and data obtained from the samples, standard SW-846 quality control procedures will be followed for all sample collection, preparation, and transport operations. A laboratory certified by the State of California for the applicable analyses will be utilized in all cases.

A brief description of the sampling techniques to be employed are as follows:

Wipe Sampling: Wipe samples will be taken of surfaces after decontamination. A 12" x 12" square will be marked on the surface to be sampled. A gauze pad will be wetted with the appropriate solvent (slightly acidified water in this case) and swabbed over the entire square. The wipe will then be sealed in a glass jar for transport to the laboratory.

Concrete Chip Sampling: The concrete chip samples that will be collected under the provisions of this closure plan will be collected on a 250' x 250' grid. A chisel and hammer will be used to obtain a chip at the sampling locations. The chip will be stored in

a glass jar for transport to the laboratory.

Soil Sampling: All soil samples taken as part of this closure will be core samples taken beneath the concrete. The concrete cores at each sample depth will be homogenized to obtain a homogeneous sample. The composite soil sample will be thoroughly mixed on-site and the sample split into two glass jars. One of these samples will be sent to the laboratory for analysis and the other retained until the closure has been completed.

Duplicate samples will be collected for all samples and will be submitted for analysis for each type of sample at a rate of 10% of the number of samples (one minimum). Other duplicates will be analyzed as needed should data validity be in question. These field duplicates will be sent to the laboratory for analysis; the results will be used to provide a measure of sampling precision.

The laboratory will be instructed to prepare and analyze spike samples on our suite of samples at a rate of 10%. The calculated spike recovery data can be used to assess the validity of the analytical results. In addition, the laboratory will perform method blank samples for each type of analysis requested. The total QA/QC analysis scheme, therefore, will result in the number of QA/QC samples analyzed to be 40% of the number of total samples.

When sampling equipment is not dedicated but is decontaminated between samples, a sampling method blank will be taken to determine the validity of the decontamination method. This type of sample will be done for the chip sampling and the soil sampling.

All of the samples collected under this sampling plan will be labeled with the sample number, date, time, sampler's name, and the analytes requested. The samples will be preserved according to the procedures outlined in the analytical methods published in SW-846. Samples will be promptly transported to the laboratory to avoid holding time problems, though that is unlikely since these samples will be analyzed for metal contamination.

9.0 Final Closing Schedule

In the event of a planned closure, clients will be notified by April 30, 2060, which is 120 days in advance of the intended cut-off date for the acceptance of hazardous wastes, August 31, 2060. In the event of an unplanned closure, receipt of wastes will immediately cease.

The anticipated complete planned closure schedule is as follows:

- (a) Within 60 days after receiving the final shipment of hazardous wastes, which is October 31, 2060 in an event of a planned closure, ECS Refining will have treated and disposed of all hazardous wastes on the premises.
- (b) Within 90 days after receiving the final shipment of hazardous wastes, which is

November 30, 2060 in an event of a planned closure, ECS Refining will have decontaminated the facility equipment and processing areas and the twenty-seven soil samples will have been collected.

- (c) Within 120 days after receiving the final shipment of hazardous wastes, which is December 30, 2060 in an event of a planned closure, but no later than the intended closure date submitted to the DTSC, ECS Refining will have either stored, sold, or disposed of all portable equipment as described above, and completed final arrangements for closure, including final security arrangements. In addition, the soil sampling analysis results should be completed by this time.

10.0 Amendment of Closure Plan

This plan will be amended if a significant change in facility operations occurs, and will be reviewed at least annually by the facility operator and updated according to inflation or other significant changes in costs, as required under 22 CCR Section 66264.142.

11.0 Notification to DTSC of Expected Closure Date

Once a decision has been made to close the facility, the facility operator is responsible for planning and monitoring the shutdown target dates, in order to ensure notification of the DTSC at least 180 days in advance of the planned closure; this date is June 30, 2060 in an event of a planned closure. The facility operator will also notify the DTSC of any changes in the closure plan as required by the California Code of Regulations, Title 22, Section 66264.112.

12.0 Procedures to Ensure Removal of Hazardous Wastes

This section outlines measures which will be taken to ensure that all hazardous wastes are removed from the equipment and the treatment and storage areas.

Any tin/lead solder dross, tin/lead solder dross with oil residue, or other tin/lead, or silver residue (including the photographic wastes) on hand will be processed to reclaim the metals if this is a viable option at closure time. The reclaimed solder and silver will be sold for profit. If ECS Refining is unable to process wastes in preparation for closure, they will be transported off-site to an approved reclamation/disposal facility. The closure cost estimate provides funds for this outcome.

The hazardous waste processing areas, storage areas, and loading/unloading areas will be thoroughly emptied and then swept with a floor sweeper. The thoroughness of the decontamination effort will be verified by concrete chip sampling and the results of soil sampling from beneath the concrete.

All decontaminated equipment will be sold and removed from the facility.

Any contaminated materials present would most likely contain lead dust and other metal particulates resulting in a potential toxicity hazard. The 55-gallon drum containing the final vacuum and equipment and floor decontamination residues will be labeled with the required EPA Hazardous Waste label and transported by a licensed hazardous waste hauler to a permitted off-site TSD Facility.

13.0 Plan to Ensure Remediation of Contaminated Concrete and Soils

After the facility equipment decontamination has been completed, any concrete which has been shown to be contaminated by the results of laboratory analysis will be removed and stored in bulk shipping containers, pending disposal at an off-site TSD Facility.

In addition to the concrete samples, a total of twenty-seven soil samples will be collected from the hazardous waste loading/unloading, processing, and storage areas, in order to assess soil contamination, if any. Samples will be chosen in areas based upon the most likely areas to be contaminated. For example, samples will be taken in areas with cracks in the concrete slab or staining of the concrete. If no cracks or staining are evident, then samples will be taken at equally spaced intervals throughout the facility. Samples will be taken from each location at soil surface and at a depth of six inches below soil surface, for a total number of 54 samples. The samples will be analyzed for the 17 California regulated metals. Should these analyses reveal contamination levels that exceed hazardous waste criteria, the contaminated materials will be collected, removed, and transported to a permitted TSD Facility for disposal. Following this, additional samples will be collected until the decontamination of the facility can be verified.

14.0 Cleanup Criteria for Soil

This closure plan provides a cleanup criteria for removal of any contaminated soil which may be discovered during facility closure through sampling and analysis as outlined in the above discussion. These estimates are solely for planning purposes; ECS Refining intends to consult with DTSC throughout implementation of the closure plan to finalize cleanup levels, if necessary.

Because the facility is completely covered in concrete and asphalt, it is not likely that metals contamination will be found underneath. The soil sampling locations have been chosen to be biased towards processing and storage areas with the highest likelihood of showing soil contamination. Results of metal analyses performed on the closure soil samples will be compared to those obtained from the background sample. A background sample will be taken north of the site 1,000 feet; this location is upwind of the facility and, therefore, is not expected to have been impacted by facility operations. As discussed in Section 2.0, a risk-based performance standard for soil will be used if background metal levels are not achievable. This standard will be established in accord with Department of Toxic Substance Control procedures and in consultation with Department staff.

Each sample point will be comprised of a core soil sample, as described elsewhere in this plan. All required quality control procedures will be followed, including taking duplicate

samples, and instructing the laboratory to perform method blank and spike samples.

At present, there is no known contamination anywhere within or around the facility, and there have been no hazardous waste spills outside of the immediate processing areas. If a hazardous waste spill should occur during the closure clean-up operations, it will be immediately contained and reported to the Regional On-Site Coordinator and the DTSC as described in the facility's *Emergency Response and Contingency Plan*.

When closure is complete, the facility owner/operator will submit to the DTSC a certification signed by an independent, registered engineer, and by an authorized officer or owner of ECS Refining, certifying that the facility has been closed in accordance with the specifications in the approved closure plan.

15.0 Closure Cost Funding Mechanism and Financial Responsibility Mechanism

ECS Refining uses Certificates of Deposit, payable to the Department of Toxic Substances Control, as a closure cost funding mechanism. The currently funded CDs, as of November 2007, are funded for \$379,637.60. The closure cost estimate changes periodically due to cost of living updates and/or facility operations. The current closure cost figure is found in an Appendix I of this closure plan.

The liability insurance requirements of the financial responsibility requirements are met by ECS Refining by insurance coverage in the required amounts.

A copy of the current Certificates of Deposit and Liability Insurance Certificate are included as an attachment to the Standardized Permit Application/Operation Plan.

APPENDIX I – CLOSURE COST ESTIMATE

This cost estimate is based on the worst-case scenario of all materials from the closure of the facility transported off-site for landfill as hazardous wastes. Although this is not the manner in which ECS Refining wishes to close the facility, this will provide for a conservative cost estimate.

The cost breakdown provided below classifies costs according to hazardous waste activities and universal waste activities. In the case of costs that are facility-wide, such as decontamination of the concrete floor, sampling and analysis of the flooring, and professional engineering certification, the costs are allocated 50% to the hazardous waste TSDF closure cost, and 50% to the universal waste facility closure cost.

A. Removal and Disposal of Hazardous Wastes:

Tin/lead solder dross (202.4 tons)(\$1/ton)	\$202.40
Photochemicals with Silver (38,040 gal)(\$0.40/gal)	15,216.00
Vacuum Dust (0.25 tons)(\$140/ton)	35.00
Wet Wiping Wastes (0.5 ton)(\$140/ton)	70.00
Pressure Wash Water (7,000 gal)(\$0.40/gal)	2,800.00
Hazardous waste processing equipment (50 tons)(\$215/ton)	10,750.00
Labor (Level C) to disassemble piping (24 hrs)(\$61.04/hr)	1,465.00
<i>Subtotal (HW cost)</i>	<i>30,538.40</i>

B. Removal and disposal of universal wastes

UWEDs (500,000 lbs)(\$0.035/lb)	17,500.00
CRT glass (600,000 lbs)(\$0.03/lb)	18,000.00
Freight for UWED transportation (12.5 loads x \$300/load)	3,750.00
Freight for CRT glass (15 loads x \$300/load)	4,500.00
<i>Subtotal (UW cost)</i>	<i>43,750.00</i>

C. Cost to Pump Our Liquid Waste:

(38,040 gal)(0.001 hr/gal)(\$61.04/hr)	2,325.00
<i>Subtotal (HW cost)</i>	<i>2,325.00</i>

D. Removal and Disposal of Universal Waste Processing Equipment

Shredder A (11 tons)(\$50/ton charge + \$29/ton fees)	869.00
Shredder B (11 tons)(\$50/ton charge + \$29/ton fees)	869.00
CRT/Monitor Shredder (11 tons)(\$50/ton charge + \$29/ton fees)	869.00
UWED Shredder (Big Blue)(33 tons)(\$50/ton chrg + \$29/ton fees)	2,607.00

	CRT Glass Washing Unit (10 tons)(\$50/ton charge + \$29/ton fees)	790.00
	Labor (Level C) to dismantle (24 hours x \$61.04/hr)	1,465.00
	Labor to load (5 loads)	1,250.00
	Transportation cost (\$1,400/load)(5 loads)	7,000.00
	<i>Subtotal (UW Cost)</i>	<i>15,719.00</i>
E.	Decontamination Costs	
	(22,000 sq. ft.)(\$0.40/sq. ft.)	8,800.00
	<i>Subtotal (HW cost = 50%)</i>	<i>4,400.00</i>
	<i>Subtotal (UW cost = 50%)</i>	<i>4,400.00</i>
F.	Hazardous Waste Transportation Costs	
	Liquid Hazardous Wastes (10 loads)(8 hr/load)(\$45/hr)	3,600.00
	Solid Hazardous Wastes (10 loads)(\$1,035/load)	10,350.00
	Hazardous waste equipment (3 loads)(\$1,035/load)	3,105.00
	<i>Subtotal (HW cost)</i>	<i>17,055.00</i>
G.	Sampling and Analysis (Entire Facility, includes hazardous and universal waste processing areas)	
	Chip Samples 17 CA Metals (62 samples)(\$395/sample)	24,490.00
	Labor to take chip samples (62 x 0.25 hr/sample)(\$45/hr)	697.50
	Soil Samples (54 samples)(\$395/sample)	21,330.00
	Labor to take soil samples (54 samples x 1 hr/smpl)(\$45/hr)	2,430.00
	<i>Subtotal</i>	<i>48,947.50</i>
	<i>Subtotal (HW cost = 50%)</i>	<i>24,473.75</i>
	<i>Subtotal (UW cost = 50%)</i>	<i>24,473.75</i>
	QA/QC Sample Analysis	
	Chip Samples (21 samples)(\$395/sample)	8,295.00
	Soil Samples (11 samples)(\$395/sample)	4,345.00
	<i>Subtotal</i>	<i>12,640.00</i>
	<i>Subtotal (HW cost = 50%)</i>	<i>6,320.00</i>
	<i>Subtotal (UW cost = 50%)</i>	<i>6,320.00</i>
H.	Certification and Engineering Oversight Costs	
	Preparation of Certification and Oversight by P.E. (10% of cost)	18,000.00

<i>Subtotal (HW cost = 50%)</i>	<i>9,000.00</i>
<i>Subtotal (UW cost = 50%)</i>	<i>9,000.00</i>

SUBTOTAL	197,774.90
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20% Contingency Factor	39,554.98
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ESTIMATED TOTAL COST (March 2008)	<u>\$237,329.88</u>
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COST BREAKDOWN—UNIVERSAL AND HAZARDOUS WASTES

<i>Item</i>	<i>Hazardous Waste Cost</i>	<i>Universal Waste Cost</i>
A. Removal and Disposal of Hazardous Wastes	\$30,538.40	Not applicable
B. Removal and disposal of universal wastes	Not applicable	\$43,750.00
C. Removal of Liquid Storage and Processing Tanks and Equipment:	2,325.00	Not applicable
D. Removal and Disposal of Universal Waste Processing Equipment	Not applicable	15,719.00
E. Decontamination Costs	4,400.00	4,400.00
F. Hazardous Waste Transportation Costs	17,055.00	Not applicable
G. Sampling and Analysis QA/QC Samples	24,473.75 6,320.00	24,473.75 6,320.00
H. Certification Costs	9,000.00	9,000.00
<i>Subtotal</i>	<i>94,112.15</i>	<i>103,662.75</i>
20% Contingency Factor	18,822.43	20,732.55
TOTAL	112,934.58	124,395.30

SECTION X

CERTIFICATIONS

FACILITY LOCATION, SEISMIC AND PRECIPITATION INFORMATION

I hereby certify the following:

1. I have read and understood Sections 66264.25 and 66270.14(b)(11), Title 22, of the California Code of Regulations on Facility location, Seismic and Precipitation Information.
2. I certify that the nearest fault to my facility is the Hayward Fault and is five miles away from my facility.
3. I certify that my facility is not in the 100-year flood plain; otherwise I will provide the information required under section 66270.14 (b)(11)(D).
4. I understand that this certification is an integral part of the formal application for a Standardized Permit for my facility and that any falsification is equivalent to a false statement under Health and Safety Code Section 25191 and may be grounds for a permit denial.

James L. Taggart, President

Print Name and Title

 12/20/06
Signature Date

ECS Refining

705 Reed Street, Santa Clara, CA 95050

Facility Address

MANIFEST SYSTEM, RECORD KEEPING AND REPORTING

I hereby certify the following:

1. I have read and understood sections 66264.70 through 66264.78, Title 22, of the California Code of Regulations on Manifest System, Record Keeping and Reporting requirements. I will have or prepare, for my facility, the required records and reports to be in compliance with all applicable regulations.
2. I certify that a copy of the required records or reports will be maintained at my facility and will be available to local, state or federal agencies upon request. I understand that this certification is an integral part of the formal application for a standardized permit for my facility. And that any falsification is equivalent to a false statement under Health and Safety Code section 25191 and may be grounds for a permit denial.
3. My facility is an offsite facility. I have sent a notice to generators that may use my facility's services and I have the appropriate permit(s) (section 66264.12(b)). A copy of my notice is kept in my facility.

James L. Taggart, President

Print Name and Title

 12/10/06

Signature Date

ECS Refining
705 Reed Street, Santa Clara, CA 95050

Facility Name and Address

PREPAREDNESS AND PREVENTION

I hereby certify the following:

1. I have read and understood Sections 66264.30 through 66264.35, 66264.37, and 66270.14(b)(8) and (b)(9), Title 22 of the California Code of Regulations (Preparedness and Prevention).
2. The procedures and equipment for my facility will be in compliance with these regulations. My facility will be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constitutes to air, soil, or surface water which could threaten human health or the environment.
3. I understand that this certification is an integral part of the formal application for a Standardized Permit for my facility and that any falsification is equivalent to a false statement under Health and Safety Code Section 25191 and may be grounds for a permit denial.

James L. Taggart, President
Print Name and Title

James L. Taggart
Signature

12/20/06
Date

ECS Refining
705 Reed Street
Santa Clara, CA 95050
Facility Name and Address

SECURITY

I hereby certify the following:

1. I have read and understood Sections 66264.14, and 66270.14(b)(4), Title 22 of the California Code of Regulations (Security).
2. The security procedures and equipment for my facility will be in compliance with these regulations.
3. I understand that this certification is an integral part of the formal application for a Standardized Permit for my facility and that any falsification is equivalent to a false statement under Health and Safety Code Section 25191 and may be grounds for a permit denial.

Kenneth TAGGART
Printed Name

 1/4/07
Signature Date

ECS Refining
705 Reed Street
Santa Clara, CA 95050
Facility Address

SECTION XI

FINANCIAL RESPONSIBILITY FOR STANDARDIZED PERMIT FACILITIES

ACORD™ CERTIFICATE OF LIABILITY INSURANCEDATE (MM/DD/YYYY)
11/03/05

PRODUCER

General Business Unit
ABD Insurance & Financial Services
305 Walnut Street
Redwood City, CA 94063

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

NAIC #

INSURED

ECS Refining
705 Reed Street
Santa Clara, CA 95050

INSURER A: American Intl. Specialty Lines Ins.

INSURER B: Commerce and Industry Insurance Comp

INSURER C: Liberty Mutual Company

INSURER D:

INSURER E:

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC	EG3779045	11/01/05	11/01/06	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$100,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS <input checked="" type="checkbox"/> Comp <input checked="" type="checkbox"/> Coll	CA3778017	11/01/05	11/01/06	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
A	EXCESS/UMBRELLA LIABILITY <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE <input checked="" type="checkbox"/> RETENTION \$ 10000	EGU3779046	11/01/05	11/01/06	EACH OCCURRENCE \$5,000,000 AGGREGATE \$5,000,000 \$ \$ \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	WC4193244	11/01/05	11/01/06	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
A	OTHER Pollution	EG3779045	11/01/05	11/01/06	\$1,000,000 Ea. Incident
A	Excess Pollution	EGU3779046	11/01/05	11/01/06	\$1,000,000 Ea. Incident
C	Personal Property	YU2L9L512139035	11/01/05	11/01/06	\$9,558,000 Bikt Limit

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER

Evidence of Insurance
Insured Copy

CANCELLATION Ten Day Notice for Non-Payment of Premium

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE



IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

BANCO POPULAR NORTH AMERICA
PO BOX 2057
SANFORD FL 32772-2057

ACCOUNT NUMBER:
BUSINESS CD

FOR PERSONAL ASSISTANCE CALL:
1-800-377-0800

E C S REFINING
ASSIGNED STATE OF CALIFORNIA
DEPT OF TOXIC SUBSTANCE CONTROL
705 REED ST
SANTA CLARA CA 95050

RENEWAL NOTICE

YOUR TIME DEPOSIT HAS BEEN RENEWED AT THE
RATE BELOW AS OF 07-06-06.

ACCOUNT NUMBER	
CURRENT INTEREST RATE	4.641
TERM	12 MONTHS
RENEWAL DATE	07-06-06
NEXT MATURITY	07-06-07
RENEWAL AMOUNT	67,028.06

